HARPER'S WEEKLY

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WILBUR WRIGHT'S AMAZING FLIGHT

The distinguished aviator flying down the Hudson in his wonderful 20-mile spin from Governors Island to Grant's Tomb and back. The photograph, taken from Jersey City, shows the aeroplane, against a background of New York's skyscrapers, as it began a dip which took it within fifteen feet of the water, after which it swept upward again to complete its course to Governors Island. Wright's official time for the 20 miles was 33 minutes 33 seconds

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Comment

Tammany Drops the Mask

THERE is no election in the country next month so interesting or so important as that in this city. If there was any hope in the mind of any voter that the nomination of Judge GAYNOR was anything but a stratagem by which the old Tammany expects to retain the power to loot the city in the old way, there cannot be any longer, since Tammany has filled out its ticket.

For Judge of the City Court, GEORGE F. ROESCH, protector of criminals; notorious politician with a scandalous record.

For Sheriff of New York County, "CHRISTY" SULLIVAN, candidate of the SULLIVANS, and their co-worker in gainful avocations of unsavory repute.

For County Clerk, JAMES J. HAGEN, once warden of the Tombs, but removed under charges; a Tammany leader of the Fifteenth District, who has grown rich in that employment and as Deputy Commissioner of Public Works.

For President of the Borough of Manhattan (an office that employs ten thousand men, and spends ten millions a year), JOSEPH HAAG, perpetual office-holder, who has grown rich in Tammany politics and can be counted on to help MURPHY.

All these candidates are such by character, record, and experience as would naturally be chosen by Tammany to give New York a Tammany administration for the benefit of Tammany.

Judge GAYNOR knows who they are and what they are, and for what they were put on the ticket. He accepted his nomination without a word of protest concerning the character of his associates, though later he gave permission to voters who were dissatisfied with them to vote for somebody else.

Mr. Hearst Will Run, Too

The HEARST contingent is by no means so complacent. It wants to beat Tammany. To GAYNOR as GAYNOR it was considerably drawn, but to GAYNOR as the mask of Tammany it is vigorously opposed. After the Tammany ticket was filled out, the Hearstites, at a mass-meeting at the Cooper Union, nominated Mr. HEARST for Mayor, and appointed a committee to fill out the ticket.

Mr. HEARST says he will run, but that the candidates on the Fusion ticket are to his taste and he will run with them. So at this writing there promises to be two Fusion tickets—one led by Mr. BANNARD, the other by Mr. HEARST, but otherwise identical.

All opponents of Tammany will be glad to see Mr. HEARST run. At least he does not stand for the looting of the city. He is not in politics for the purpose of enriching himself or any one else. Voters who believe in governing New York for the benefit of the people who live in New York may vote for Mr. HEARST without violence to their desires. There should be candidates enough to give the voters a fair chance to express their feelings. Not one of them should be constrained to vote for Tammany for lack of a candidate to his taste. Mr. BANNARD is a good-enough candidate for us. We like him and believe in him, and believe that the interests of the city will do best in his charge. But there are voters who hate Tammany Hall and all its works and who nevertheless will not vote for BANNARD.

Let them vote for HEARST, then, by all means, and if there should be enough of them to elect him, more power to his elbow in all good works! If there are only enough of them to elect Mr. BANNARD, Mr. HEARST will have run to still more admirable purpose, and vindicated the sincerity of his anti-Tammany fulminations, and earned the gratitude of most of the people of New York.

Mr. Bannard

Mr. BANNARD has three weeks in which to make himself known to the voters of New York. There are many voters and three weeks is a short time. Nevertheless, he is going to try, and we shall see how he succeeds. Those that get to know him a little will like him; those who get to know him better will like him better; those who want a Mayor who will work for the people of the city all the time will vote for him whether they know him or not.

Mr. BANNARD has done a great deal of work for the people of the city as it is. He has been at it pretty constantly for the last thirty years. It has been valuable work done without pay. But it has been nothing like so valuable as the work he will do beginning next New-Year's if the voters make good use of their chance and elect him Mayor. It is a great chance; a better chance to get a competent and disinterested man into the Mayor's office than the people of the city have had for a good many years.

Subsidies or Free Ships?

With President TAFT and Speaker CANNON both fully committed to ocean-mail subsidies, the railroads and perhaps other combinations of capital more than ever alive to the desirability of better service between our ports and those of South America and Asia, and the popular feeling that *something* ought to be done for our merchant marine, also apparently growing stronger, there really does seem a chance that Congress will during the next session take the matter up in earnest. Those who believe that what we need is free ships and those who believe that what we must have is subsidies or bounties will both doubtless say their say in full. Those who feel that the main thing the matter is not the denial of free ships nor the withholding of bounties, but the working of our protective system as a whole, will also, we trust, insist on a hearing, although, of course, we cannot expect them to have their way at present. Mr. WINTHROP L. MARVIN, sometime secretary to the Merchant Marine Commission, writing in the *Atlantic Monthly*, puts the case for the subsidies policies pretty well. He is not precisely against free ships, but holds that getting ships "free"—that is to say, having them built in England from twenty-five to thirty-five per cent. cheaper than we can, under protection, build them over here—will not enable us to use them profitably against the heavily subsidized European lines. He points out, not unjustly, that we have simply left out of the protective system the industry of the ocean-ship owner—not the ship-builder nor the owner of coasters, but only the owner of ocean ships—and that meanwhile practically all the other great nations have been granting bigger and bigger subsidies to fast mail lines. His argument gets weak, however, when he tries to explain why the slow-cargo business and the tramp business have also passed away from us. Perhaps the outcome of the movement may be both subsidies to American-built lines and free ships without subsidies, and that arrangement will at least have the merit of enabling us to see which of the two principal remedies proposed will work the most benefit.

There is still another way of looking at the question. We are a young, growing country, where both capital and labor find better openings than in the old countries, and command better returns. May not that of itself be the principal reason why we do not find it worth our while to go extensively into the ocean-carrying business? Nevertheless, if we are going to have a considerable navy, we ought, of course, to have a respectable merchant marine to supply auxiliary vessels and a naval reserve.

Dodging the Income Tax

The Republican party in Massachusetts may know whether or not it is in favor of a Federal income tax, but it has not told in its platform. The income-tax plank in the platform reads:

> The Republican party of Massachusetts has always favored an income tax. It has been committed for many years to legislation based on the principle that the burden of taxation should be distributed so as to bear most heavily upon those best able to sustain it. For more than fifty years an income tax has been collected in this State for local uses. A Republican Congress has submitted a constitutional amendment to be voted on by the various State Legislatures to determine whether or not the right to levy an income tax now denied by the Federal Constitution shall be given to the United States government. The question, therefore, presented to the people of this State is not the question of the imposition of an income tax, but rather of its disposition, or else it is the question of a double income tax. It is a question whether such a tax shall be collected for local uses or for national uses, or else it is a question whether one such tax shall be collected for local uses and another for national uses. We believe that this question is one that should be decided by the Legislature, not as a political issue, but as a practical question after full examination and having due regard to the relative needs and the sources of revenue of the national and local governments.

There are a good many excellent incomes in Massachusetts, and the disposition of the Republican platform-builders seems to be to keep them there. At the same time they think it imprudent to say so. Greed, being human, is more or less respected, but folks who want to eat their cake and have it get laughed at. That is what has happened to the artificers of the Massachusetts Republican platform. They might better have said what they thought.

"Navy Fever"

> "The main thing is to expose the lying and treacherous fallacy expressed in the statement that every fresh ship is an addition to the power of Germany—when every fresh ship causes England, to say nothing of France, to build two ships," declared Herr VON HOLSTEIN last February, only three months before his death, according to a writer in the *Deutsche Revue*. For years he had ruled the German Foreign Office from behind the scenes, and at the last he was wholly convinced that the policy of unlimited naval expansion was a "dangerous disease."—*The World.*

It is a disease, not dangerous to Germany alone, but to all the world. To get Germany cured of it is a leading purpose of the building of every warship that is now in process of construction. Every sign that the disease in Germany is being fought on the inside (as Candidate GAYNOR would say) is welcome to the weary world that has got to build as long as Germany does, and is very tired of putting its capital into unproductive investments.

Tim Sullivan's Day

> Why Governor HUGHES signed the Columbus Day bill has always been a mystery. It was a foolish mistake.—*New York Times.*

Hereabouts the Hon. TIM SULLIVAN's New York State "Columbus Day" holiday, on October 12th, was more than usually in the way this year because of the great disturbance to the routine of business caused by the HUDSON-FULTON celebration. After that week of distractions, ending on October 2d, to have to knock off work again and mark time on October 12th was a severe trial. The day is purely "TIM SULLIVAN's Day." He got it up to please his Italian constituents. It is, as the *Times* says, surprising that Governor HUGHES did not protect us from the consequences of Big TIM's thrifty enthusiasm. Moreover, as we have just flown the colors of the Dutch East India Company in celebrating the exploit of HENRY HUDSON, an Englishman, so by right we should fly the colors of Spain on October 12th, celebrating the exploit of an Italian. Italy's chief contribution to the discovery of America was in giving the cold shoulder to COLUMBUS and driving him off to Spain, where he found backing. October 12th is really fitter to be kept in honor of Spain than Italy. But Big TIM has no Spanish constituents worth mentioning.

The Bequests of Harriman

HARRIMAN was no HOMER—not a poet, not a beggar, and of fairly keen eyesight; but it looks as if not seven cities, but seven States, if there are so many with inheritance-tax laws sufficiently sweeping, will claim him dead. When Washington last winter threatened a national inheritance tax, the objection prevailed that a number of States had already adopted the scheme and it would be overworked; now it appears that something will have to be done to keep the States from overworking it by themselves and trenching on one another's prerogatives in the matter. Had Congress honestly accepted and worked out the plan of a permanent tariff commission, it would doubtless have developed into a plan for a commission on the whole subject of taxation, which our Federal form makes it particularly advisable to systematize. It is high time the thing were taken up in some scientific and thoroughgoing way, and the intelligent popular interest in such themes that has been displayed since the tariff row was begun makes us hopeful that before very long it will be.

Meanwhile, however, we are rather more concerned over what is to become of Mr. HARRIMAN's

bequest of methods and ideas than over what is to become of his estate. We doubt if his method of accumulating railroads—getting control of one, issuing more securities, and thus enabling that one to eat up others—will ever be practical again on such a scale. It is understood now and can be defeated; perhaps President TAFT'S proposals, if adopted by Congress, will defeat it. When applied, as Mr. HARRIMAN applied it, to competing roads, it worked some saving to the roads, but a loss, on the whole, to their patrons, who did not get the benefit of the economizing and were in many instances forced to pay higher rates. When applied, as he also applied it, to secure feeders and better connections for a trunk line, we are not sure that it did not, on the whole, do more good than harm. This also, however, would be prevented if the proposed law to keep any railroad from holding stock in any other were skilfully drawn and enforced in spirit as well as in letter.

There are left, however, other inheritances from this remarkable mind which we trust our other able railroad men will not fail to keep and put to use. There were his improvements in operation, his masterly ways of saving money in the long run by spending freely and boldly in straightening tracks, building cut-offs, putting in better rails and road-beds, and the like. There was his unequalled gift for discerning the possibilities of increasing, extending, even creating traffic, his continental breadth of view, as well displayed in the purchase of Georgia Central, which established a complete through line from the extreme southeast to the farthest northwest. Such truly constructive contributions to the art and science of railroading ought not to be undervalued, because so much that he did was destructive and perhaps immoral. We may be fast approaching a new régime in railroad history in which such careers as his will be impossible. That is not to be regretted. He had far more power than any one citizen ought to have—or any ten or twenty—and the way he used it did not square with the Golden Rule or justice. Very likely he was the last of his kind. But we admire the last of the barons, however glad we may be that we shall not look upon his like again. Nor can a new age ever get on without what it inherits from the age that came before it.

Jo Smith

Not long since there were reports in the papers that there were to be ceremonies at Sharon, Vermont, in honor of JOSEPH SMITH, who was born there and became the founder of the Mormon Church, and that Senator REED SMOOT would make an address, and that sundry officials of Vermont had been invited to attend. Commentators in the newspapers held that it was inexpedient that there should be any participation by Vermont officials in these exercises. Sharing that opinion, we supported it, and spoke of the late Latter-Day Saint as "an atrocious fakir" and "an enemy of civilization." Two letters are printed in another column, the writers of which chide us, more or less gently, for language so disrespectful to a revered founder of Mormonism.

There must inevitably be discrepancy of sentiment between Mormons and Gentiles about the prophet JOSEPH and his teachings. Perhaps SMITH was not so much an "atrocious" fakir as a deluded one. That he was a fakir no Mormon will be convinced, we fear, by our reasserting it, and no one who is not a Mormon needs to be convinced of it, so we shall not press that now.

No wise person wants wantonly to flout the Mormons. So far as their religion goes, they have been taken in, and in that particular most of them are proper objects of pity. Mr. TAFT spoke in their temple the other day as Mr. ROOSEVELT did before him. He was criticised for doing so, but not, we think, with justice. They are American citizens and entitled to hear the President discourse, and to fair treatment in all ways, under the law. But their religion and Jo SMITH'S poor fantastical revelations are not entitled to more respect than the vaporings of the late DOWIE, or the expectations of such over-confident Adventists as met last month at Duxbury and waited for the world to end.

The Colleges Again

"All work and no play makes Jack a dull boy." That is a text which no doubt has been pondered many times by Presidents WILSON and LOWELL and the numerous other gentlemen who are trying to find out what's the matter with the colleges. They have also turned it around and considered the results of all play and no work, or barely enough work to get through examinations and "rag" a degree, which seems to be a still commoner state of affairs, since the sports and all-round men decidedly outnumber the "grinds" in most colleges: and they don't find those results satisfying, either. They all agree that the thing to do is to make studies attractive, and President LOWELL once suggested that it might be possible to accomplish that by arranging rewards for success in studies that shall be really desirable and desired, like those to be won in athletics. That plan may be all right, but as we see it, athletics and club life, and banjo and mandolin playing, and glee-club singing, and the other things that operate to leave studies to the grinds are attractive in themselves, and not merely because of the distinctions to be won in them. The best way to make the study courses attractive is like JOHN SHERMAN'S way to resume specie payments. Why not begin by making them attractive? It is up to the professors. Our observation is that whenever a professor lectures engagingly—say, as engagingly as a good public speaker speaks or a good preacher preaches—he needs bigger and bigger lecture-halls, and the difficulty is to keep fellows out of his courses, not to get them in.

Make Studies Yield Delight

It is also our observation that the professor who professes that way enjoys it himself. Of course not all professors have the gifts to do their work that way; but we incline to think the disposition to do it that way is wanting almost as often as the ability. There is a disposition instead to scorn the fact that studies "serve for delight," and to keep an eye only on the other uses of them that Lord BACON mentions in that famous little essay. Might not something be gained this new session if the professors should do a little self-examination along the lines of the all-work and no-play proverb? Take the history courses, for example. That surely, one would say, is a study that might yield delight to the teachers as well as to the taught. A good many of us, outside of the colleges, actually pursue it, now and then, mainly for pleasure. In fact, we doubt if any bit of it, any part of that whole vast and various field of inquiry, need be so very dry and dull as to repel a reasonably healthy intelligence or imagination. But dip into a volume or two of the reports or proceedings of the historical societies, made up mainly of the college professors, and you will come out with the notion that history work is decidedly all work and no play. The piles of foot-note sawdust often fairly crowd the text off the pages: and the text seems to be pretty consistently of the quality that gets a man's remarks at a club promptly agreed to, and sends the other fellow to the billiard-room or the whist-table or the engagement he has just remembered. Of course what is true of these academic gentlemen's discourses in their conferences and associations among themselves may not be true of their lecturing and teaching when they separate and go back to their various class-rooms; but we fear it may be true in a measure. The complaint of the sports and all-round men seems to be that the teaching part of colleges is usually by grinds and for grinds. That complaint probably isn't true enough to excuse the sports and all-round men for cutting lectures and hiring coaches to cram them for examination. But isn't it true enough to call for some thinking on the other side?

General Lee's Statue

Two letters that seem to belong together will be found on this page. We believe the statue of General LEE already stands in the Capitol. It stands there for Virginia and illustrates her history. Those who feel as Mr. SANBORN and Mr. WILDER do, that it ought not to be there, are few in number. The years are running against their opinion, and it will not be long, we imagine, before it is extinct. Mr. WILDER describes General LEE as a "traitor." It would be hard to make that word honorable, but if it was applied often enough to General LEE the feat might be accomplished. And then we should have to invent another word to express what we mean when we think of BENEDICT ARNOLD.

The Statue of Robert E. Lee

ITHACA, N. Y., *September 18, 1909.*

To the Editor of Harper's Weekly:

SIR,—On the editorial page of your issue for August 14th, referring to Mr. Frank B. Sanborn's protest against the proposed placing of the statue of General Lee (presented by the State of Virginia) in the old hall of the House of Representatives in the Capitol of the United States, it is said, "His is the only objection we have seen and that is the impressive part of it."

Mr. Sanborn's article appeared first in the Springfield (Massachusetts) *Republican* and was republished in the Boston *Transcript*, presumably with the approval of that paper. Remonstrances from Civil War veterans have been printed this summer in the New York *Tribune* under dates of July 26th, July 28th (two letters), and August 2d. At some time within the last ten years, when the matter was under discussion, the same paper printed a protest from me which elicited commendatory private letters; but my own copy is not now at hand, and I do not recall what other communications of like import appeared at that time.

In the *Tribune* for July 30th and August 2d are letters (not purporting to be written by old soldiers) deprecating the maintenance of "war-time animosities" and asking the Northern survivors not to "grudge our Southern brethren the pleasure of honoring their leaders."

Is there not exemplified in these sentimental appeals that "mixing up of things" which the late Mrs. Thomas Carlyle so epigrammatically stigmatized as "the great bad"? Probably no Federal veteran would object if a statue of Lee were set at every Virginia cross-roads. Whether or not most of them "forget and forgive" (I do not pretend to do either, but that is immaterial), they certainly cherish no personal animosity toward him. Doubtless many others have listened to one or more of the annual eulogiums of him and have sincerely shared the then and there prevailing regard for him as a man, admiration of him as a soldier, and respect for him as the head of a university. But as a citizen of the United States, as a beneficiary of its military academy, and as having taken a solemn oath to support its government, in "bearing arms" against it Robert E. Lee deliberately elected to become a traitor, and as such no national honor should be accorded or permitted. Let not the youth of this and coming generations be encouraged to disregard the vital difference between affection for family, friends, or State and sworn allegiance to the nation.

I am, sir,

BURT G. WILDER.

Late surgeon Fifty-fifth Massachusetts Volunteer Infantry.

BENT MOUNTAIN, VIRGINIA, *October 4, 1909.*

To the Editor of Harper's Weekly:

SIR,—I hope that you will allow me to reply through the columns of your paper to Mr. Sanborn's letter, which appeared in a recent issue. It would seem that Mr. Sanborn had felt the prick of General Lee's military prowess. Was he grazed in flight by a bullet from one of his sharpshooters? Or can it be that such bitterness is purely impersonal? It is late in the day to "kick against the pricks." He should have paused long enough to return the fire during action, and not waited until his opponent was powerless to repel attack. But the fight is over, Mr. Sanborn. Does not victory satisfy you? Your consciousness of freedom from error? Your sense of virtue inviolate? Does Mr. Sanborn give General Lee credit for no admirable motives whatever—cannot he make one favorable comment to offset such scathing criticism? He will find few of the defeated ones so ungenerous as to deny the high motives actuating the opposing side, and fewer still who will deny our own sense of right acting in the matter. Like all great questions it is many-sided—a hexagon of prismatic colors, from no two-view points appearing of the same hue. Mr. Sanborn forgets or ignores that the Southern States too were the United States—that we, too, fought for our right as set forth in the Constitution, whose compilation was as much the labor of our statesmen as of any others. It is unlikely that our statesmen would have omitted to make provision for the protection of their own people. South was as much a part of the Union as North, and separately it was as much these United States as was the North considered as a separate body of States. And the South had given as many, if not more, generals and statesmen to the establishment and maintenance of this Union as had the North. Therefore she should have had an equal right to protect the property of her people. There is no reason to think that the Union would have been dissolved had Lee won. The very fact that the South was united under one President showed a determination to adhere to Union, and had the South won, the North could as easily, if less gracefully, have accommodated herself to our reconstruction as we to hers. We cannot consider with aught but pity the smallness of one who in a spirit of contempt for his failure would place a memorial to this great man at that point which marks the pathos of his noble surrender. General Lee was crushed, overwhelmed, we admit, but why penitent? Penitence asserts a knowledge of guilt and wrong. Prove that he ever considered it wrong to have answered to the call of his people in their hour of need, to have given the cream of his genius to their defence, and we will move that no statue of him whatsoever shall profane the soil of this his native State. St. Peter and General Lee, though both wept, are hardly parallel cases. Peter's denial of his Lord sprung from cowardice. Of lack of courage even his bitterest defamers could never accuse Lee, who, governed by *his* sense of right, espoused a cause which plainly had the odds against it, the material odds of greater resources—these he faced with indomitable courage. Let all who have within the germs of Hero Worship, the spirit of this new America, the soul of its democracy and brotherhood, unite in any tribute to him. Only know the man as he was, see his lost cause as he saw it, idealized, as it appeared in his heart, and you see a spirit and an ideal so pure, so sacred, that none might scorn to do him reverence. I agree with Mr. Sanborn only in this, that the monument be placed at Appomattox, on the ground hallowed by the surrender of the noble spirit—who truly wept, not in penitence as did St. Peter, for he had nothing of which to repent, but in sorrow—the tears from a broken heart. Yes, the statue should stand there, on the spot consecrated by those tears, and let it be a memorial not to his victories, but to his defeat. For he was greater in defeat than in victory.

I am, sir,

J. COLES TERRY.

Some Medieval Reprisals

WHOEVER keeps a close watch upon the general temper and mind of the people must have noticed, alongside of the interest in scientific research and the increase of thought for material trappings, a great revival of interest in the soul and the soul's affairs. This has led to a pretty thorough overhauling of the records of the thirteenth and fourteenth centuries and the unearthing of a good many writings of the specifically religious temperaments. One says temperaments rather than thinkers, for the latter word would hardly apply to these people who relied so much more upon their intuitions and feelings than upon their powers of rational thinking.

It is a natural reaction against materialism, with its endless wants and its restless desires, no sooner satisfied than hydra-headed they crop up again multiplied, that the mind of man should turn back to try and discover the secret of people who lived and suffered under conditions primitive and uncomfortable to a degree we can hardly imagine, and who yet found, by the turn of their thoughts and the faith of their hearts, nothing less than sheer bliss.

The interest in sanctity outlives all doctrinal discussion, all theological questions, all dogmatic or rationalistic sectarianism. Here is the thing that has worked out and produced a visible result. The saints had the power here and now to attain to joy; they not only accepted the universe, they loved it, and they loved it most zealously when to all outward seeming it might appear most difficult, most disappointing, most grotesque or terrible. They realized the unreality of all but thought, and, like the great Emperor, they knew that opinion was all, and like the poet, that the mind is its own place and makes a heaven of hell, a hell of heaven.

The great problem of human life is the adjustment of the individual will to reality. We are all of us dimly conscious, in a shifting universe, of some abiding principle which includes us. We know by contrast, and as we gaze about us at the unbroken flux of all things, the continuous shifting of separate appearances, we instinctively posit a contradiction, an absolute, a universal, a heart of stability and rest about which the atoms whirl. The great task set human beings is, becoming aware of will, to control and direct it. The personal will, the first we recognize, we find, to our sorrow, does not necessarily flow with the universal; it is not held in leash and moved along with the universal. It is a disorderly little gust of passionate, wilful, selfish desire; and our peace lies in controlling it, uniting it to the great winds of destiny. Religion, then, is one of the efforts to train the will, to make it flow with the universal will, to tune it to abiding principles. Religion in the sense of doctrine, dogma, sectarian divisions has had little power to do this, but sanctity in every case has achieved it. The saint has visibly learned the surrender of the personal will, and however painful the process, the result justifies it. This, then, is why to-day so much of the literature of the Middle Ages is accessible again. A happiness, a faith in life and death and the eternal issues, was attained by certain individuals living more than five centuries ago, which all the scientific progress, all the increase of material wealth, are unable to bestow.

Take one of the very crudest examples found in the recent reprint of the *Life and Death of the Holy Fina of San Gimignano*, and while the concrete facts recorded of her life may easily be reduced to ridicule, the philosophical meanings of her life lie as deep as any truth science has uncovered.

That a little girl should eschew converse lest it imperil her soul, "forswearing the pleasures in which her like indulged, such as to gambol and frolic and such-like frivolities and pleasantries and the setting fast of the heart on fine raiment and worldly joy," that she should work unremittingly that she might earn each day the wherewithal for the sustenance of her body, that she allowed no fears or anxieties to enter her mind, although struck down with palsy at the very time when she was fairest and most goodly, so that she could in no wise rise from her couch nor for more than the space of five years move hand or foot, all this seems beside the mark to-day. But what is vital is, that with the odds so against her, the little maid was unfeignedly content. During the five years that she lay ill on her oaken board, refusing to let her body rest on any soft or yielding substance, no impatient or complaining word passed her lips. From childhood she perceived that there was a higher bliss than that self-gratification; she realized that the strength of the spirit waxeth perfect through suffering, and finally, however crudely told the tales of her miracles are, they do convey the fact, as true to-day as when she lived in 1250, that wherever a soul is holy and patient and tolerant, others are headed by it. It is a truth unshakable and indubitable. Holiness is healing, physically and mentally healing.

In the same medieval series with the holy FINA is a reprint of the *Divine Consolations of Sant' Angela da Foligno*, a hermit of the tertiary order of St. FRANCIS, who was born in 1248. Unlike the holy FINA, who made her election as a little child and stood her test and died at fifteen years of age, ANGELA first tried the world and its ways, and her record of the religious life differs from that of FINA as does always that of the penitent from that of the once-born. Indeed, the instinctive saints, those who from the first dawn of consciousness cling to innocence and austerity, mortifying the body and its casual desires for the soul's sake and the eternal life, seem always to be inarticulate. They can live virtue, but they cannot speak it. The penitents are voluble. They have fulness of experience, and from them the divine consolations when they come draw forth rapturous speech. They are fully conscious of the steps they take. "As I walked," said the Blessed ANGELA, "by the way of penitence, I did take eighteen spiritual steps before I came to know the imperfection of my life. The first step was reflection, the second was shame, and the third was perseverance in penitence," etc.; and finally she found that God poureth into the soul an exceeding great sweetness, in a measure so abundant that it can ask nothing more . . . and then all injury which the soul suffereth, whether by deeds or words, is esteemed as naught and is turned "into sweetness."

At the same time that ANGELA was recording her divine consolations in Foligno, in Magdeburg, Germany, MECHTILDE, a nun, who at seventeen had entered the cloister, was writing her account of "The flowing Light of the Godhead" and how it illumined the soul. "Those," she wrote, "who want to know God and yet love Him little must ever live in turmoil; fear mightily to *know* God before you love Him. Worshipful love and keen knowledge together work great things. And holy self-restraint is the midwife of wisdom." A very tender little dialogue is that of the Soul with her love, where the soul complains: "Oh, Heavenly Love, you have taken from me all that I had won upon earth."

"Queen Soul, that was a wonderful bargain you drove with me."

"Oh, Love, you took my childhood."

"Queen Soul, I gave you instead a heavenly freedom."

"Oh, Love, you took my youth."

"Queen Soul, how many a noble virtue I gave you instead!"

"Oh, Love, you took my good friends and even my lover."

"Queen Soul, what an ignoble plaint you make!"

"Oh, Love, you took the world, and the fame and riches of the world."

"Queen Soul, that have I made good to you, according to your own will, by a single hour's experience of the presence of the Holy Spirit."

"Oh, Love, you have made my body undergo a wonderful decrease."

"Queen Soul, how many glorious perceptions I gave you!"

"Oh, Love, you have destroyed my flesh and drunken my blood."

"Queen Soul, then I was drawing you Godward."

One cannot turn from the medieval reprints without a word for a new reprint of the *Revelations of Divine Love* of the Blessed Lady JULIANA of Norwich, who tells us, among her lovely and cheering visions, that one of the chief of these was: "I saw that each kind compassion that man hath on his even-Christian [fellow man], it is Christ in him." Of all the mystics recently reprinted, the Lady JULIAN is the most cheerful, the least visionary and ascetic. What she gives us is the record of God's mercy and His reassuring revelation to her soul.

They all bear witness together that even in the midst of sorrow and evanescence, peace and stability may be won. And a certain divine simplicity and trust emerge from the will to do the bidding of that which is greater than ourselves, more universal, and more inclusive.

Correspondence

"JO SMITH"

LOGAN, UTAH, *September 16, 1909.*

To the Editor of Harper's Weekly:

SIR,—As a young Mormon of to-day, who regularly reads your WEEKLY, I certainly take issue with statements made in a recent editorial on "Jo Smith."

I think you should not so vigorously attack a man as "atrocious fakir" and "enemy of civilization," whom many thousands of your countrymen regard as a very remarkable, good, and excellent man.

The influence that Joseph Smith has exerted upon all Mormons of my acquaintance has in no way that I have been able to perceive worked for their detriment.

We invite you to visit Salt Lake City and other of our Mormon communities. I am sure you will find us a prosperous, happy people, with our schools, our churches, our farms, and our places of business.

And I venture to say that never a week passes in any Mormon household where the name of Joseph Smith is not mentioned with reverence.

We beg of you in the future to forbear speaking illy of him. I am, sir,

PRESTON NIBLEY.

CHICAGO, ILL., *September 19, 1909.*

To the Editor of Harper's Weekly:

SIR,—In your issue of September 11th I notice an article entitled "A Monument to Jo Smith" which does not seem to have undergone the usual censorship that characterizes your weekly output.

In the first place, the matter treated is rather belated, as the dedication which is "to take place soon" really took place nearly four years ago—I think December 23, 1905, the one-hundredth anniversary of Mr. Smith's birth.

Secondly, the article savors strongly of rancor that one hardly expects in HARPER'S WEEKLY. It is somewhat inaccurate and quite misleading. Whatever else may be said of Mormon polygamy, it was never an "attractive," but rather a "repellant tenet" to most of the disciples, as is evidenced by the comparative few Mormons that were induced to practise it, despite the vigor and fervor with which it was preached in Utah prior to 1880. Moreover, Mr. Smith has not generally been given credit for having taught polygamy, that honor having been reserved for his successor, Brigham Young.

Again, however mistaken Mr. Smith may have been in his views, that he was an "atrocious fakir," "an enemy to civilization," and one that "did the country a great mischief" are open to question, and I think but few of your readers are of that pessimistic type of mind which accords him the power of having done the country any great or permanent injury.

If the Mormons would have wilted naturally under the touch of Christian civilization and the laws of the United States, why not now permit them to do so quietly and peacefully? Why aggravate the Mormons and impose upon the public with "hot shot" like the article mentioned? I am, sir,

ALBERT M. MERRILL.

A PREJUDICE THAT WOMEN SHARE

LOS ANGELES, CAL., *September 17, 1909.*

To the Editor of Harper's Weekly:

SIR,—In an editorial in your issue of August 21st you use this expression: "It is very difficult to get over an early acquired prejudice against being governed by others."

Women have this prejudice against being "governed by others"; have, in fact, not only an early acquired, but an emphatic and decided prejudice against being treated as children, in that they are governed by others just as children are.

Intelligent women feel just as keenly as men the disgrace of disfranchisement and desire to be released from this disgrace, which is the last vestige of slavery in the United States.

I am, sir,

VIOLA KAUFMAN.

WHEAT AND THE TARIFF

PRATT, KAN., *September 20, 1909.*

To the Editor of Harper's Weekly:

SIR,—I cannot agree with Mr. Minot, whose note appears in your issue of the 18th inst., that the chief obstacle to a satisfactory revision of the tariff is the millions of Western farmers who are unwilling to give up the twenty-five cents per bushel tariff on wheat. Western farmers who have taken the trouble to inform themselves care nothing at all about this tariff on wheat, as it does not affect the price one way or the other. Of course, politicians have used this bait at the West to secure votes, and at the East to conciliate revisionists, and Eastern Congressmen have voted for it for the support in turn of Western members for their own tariff measures, and thousands of people, like Mr. Minot, think it affects the price of bread, while, as a matter of fact, it does not. So long as the United States produces a surplus of wheat, the price will be fixed in the world's markets, as is now the case. The Canadian farmer is to-day receiving substantially the same price for wheat that his corresponding neighbor in the United States receives, because the price of both is determined by a common foreign market. If this tax on wheat stands in the way of a righteous revision of our protective tariff, by all means let it be removed. I am, sir,

J. S. BARNES.

A Suggestion

THE movement inaugurated by the National Daylight Association of London to have the clocks turned two hours ahead in summer for the benefit of government employees is gaining considerable headway in Washington.—*Daily Paper.*

Turn the clock back, do not turn it ahead!
Knock off the time that already hath sped.
Make us all younger by so much per day,
Bringing back youth to the head that is gray.
Give us a new legislative decree
Taking us back to the days of our glee;
Giving us back all the pleasures of yore
Back in Steen-hundred-and-seventy-four.

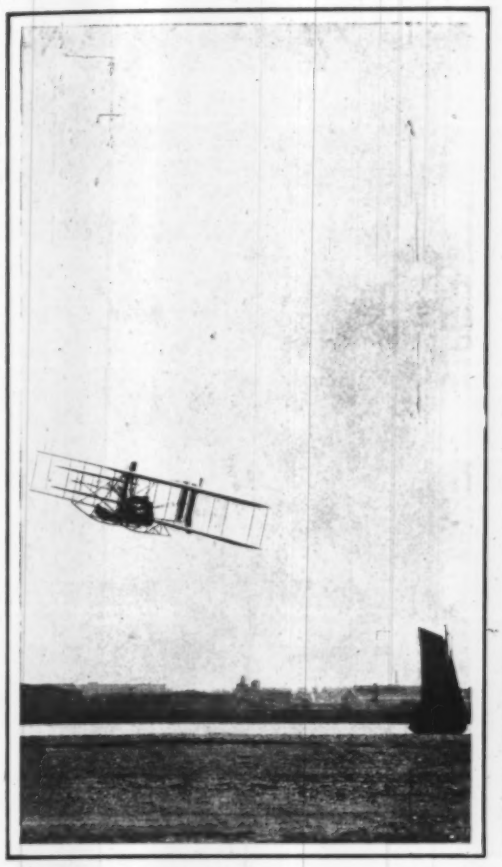
Put the clock back, aye, put the clock back!
Let us give old Father Chronos a crack,
So that the aged, the halt, and the lame,
Routing and shouting can get in the game.
Take the old codgers of seventy-nine,
Limp in the legs, and all twisted of spine;
Carry them back to the frolicsome scenes
Back in the days when they travelled their teens.

Put the clock back, aye, give it a twist
Back to the ages now clouded in mist,
So that the old maid of fifty-and-three,
Giddy of heart, but infirm in the knee,
Like to the maiden of twenty-and-four,
Having of lovers a plentiful store,
Once more may lead in the rout and the dance—
Turn the clock 'way back and give her a chance!

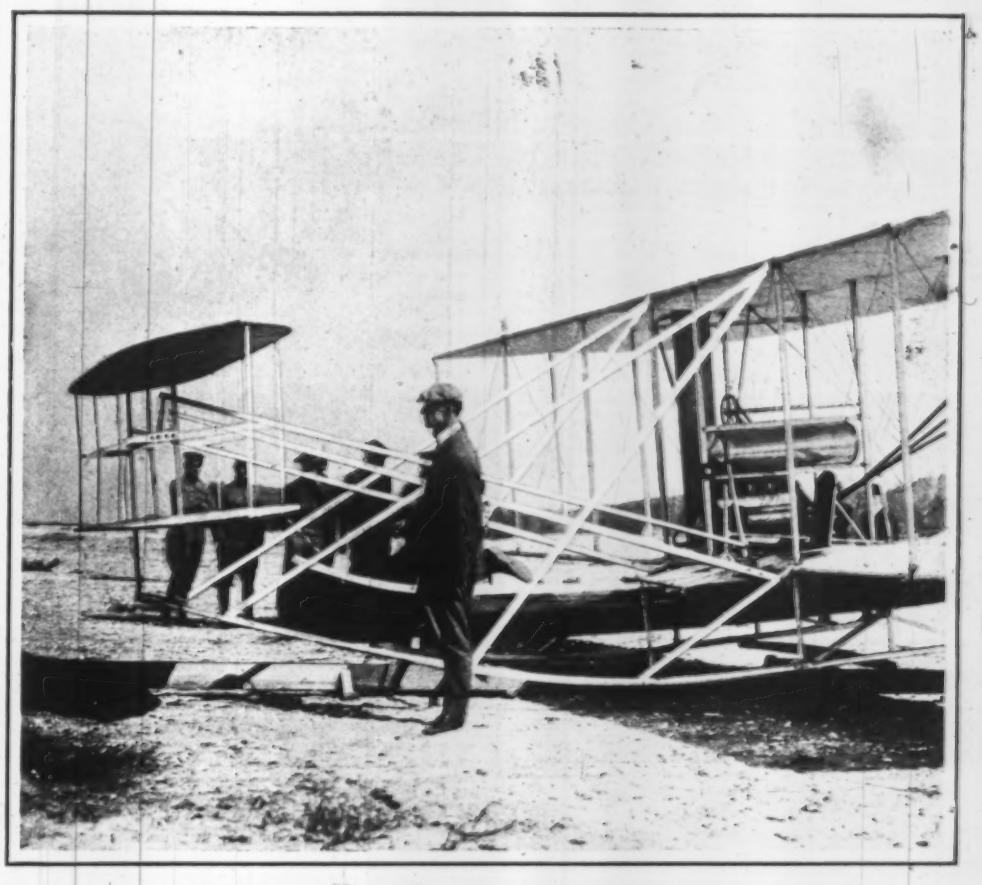
Put the clock back to the days of the Knights,
Troubadours singing romantic delights;
Knights ever ready for chivalrous deed,
Visored and mounted on tin-plated steed,
Poising their lances and seeking their foe,
Full of the wine of fresh youth in his glow,
Ready to do and all ready to dare,
All for the sake of some sweet Ladye Fayre!

Put the clock back—aye, turn back the hands.
Make it the law in all civilized lands
That from this day as the centuries run
Old age no longer depends on the sun,
Making by law and by Congress' decrees
Every man old or as young as they please—
That were a measure surpassing all tongue—
Turn back the clock and make every one young!

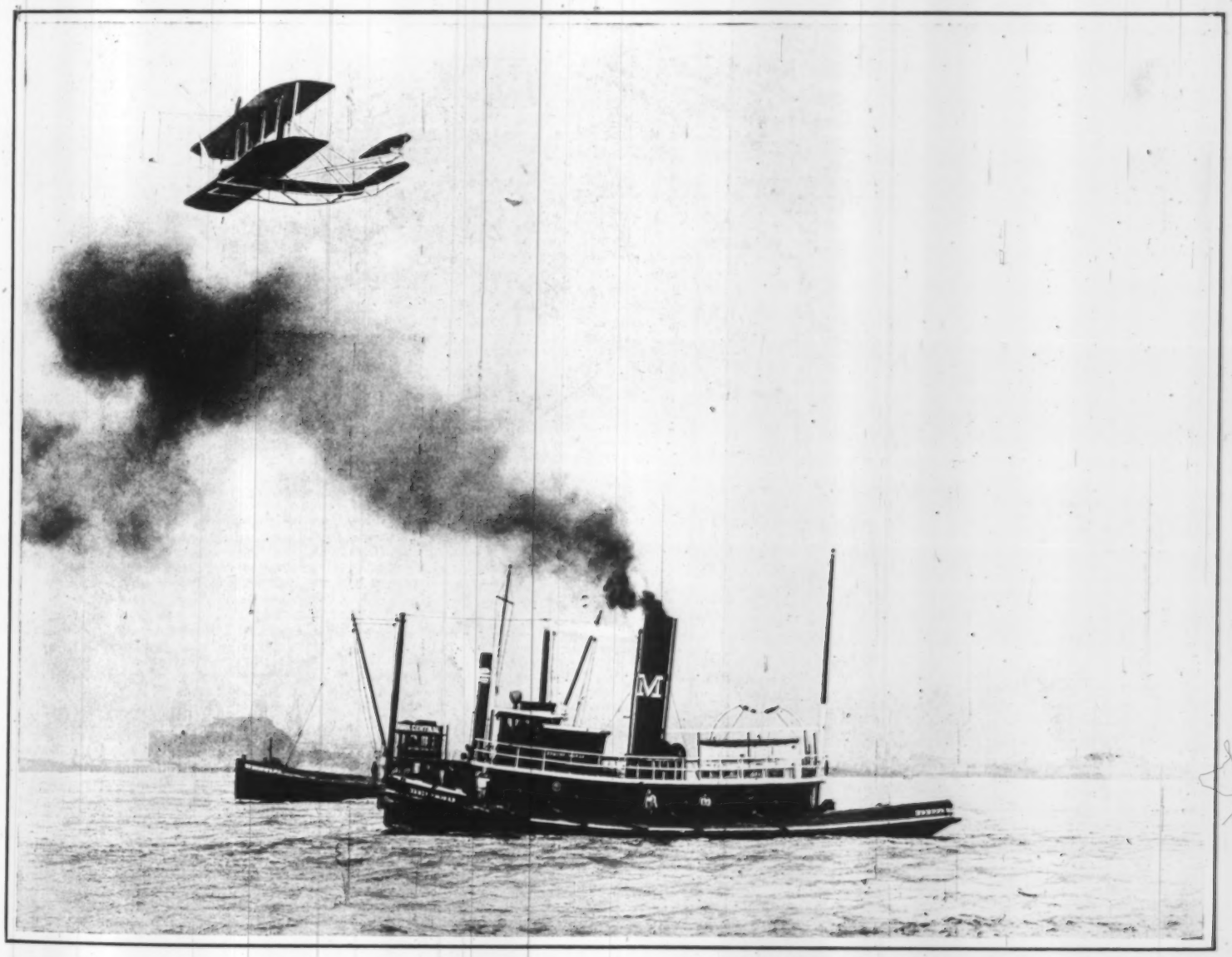
JOHN KENDRICK BANGS.



The aeroplane soaring over Governors Island, the starting-point, preparatory to its flight up the Hudson



The aeroplane balanced on the inclined monorail down which it glides to gather sufficient momentum for its launch into the air. Mr. Wright is shown standing beside his machine

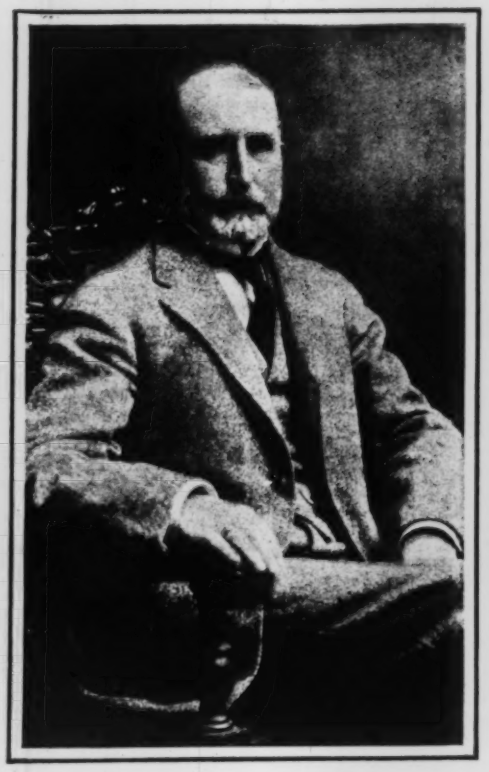


During the aeroplane's round-trip over the Hudson River between Governors Island and Grant's Tomb, Wilbur Wright received a continuous ovation from the whistles of the various craft on the river

INAUGURATING THE HUDSON'S AERIAL HIGHWAY

WILBUR WRIGHT SUCCESSFULLY DEMONSTRATED ON THE MORNING OF OCTOBER 4TH THAT THE FASTEST TIME BETWEEN THE BATTERY AND GRANT'S TOMB IS MADE, VIA THE HUDSON RIVER ROUTE, BY AEROPLANE—33 MINUTES 33 SECONDS FOR THE ROUND-TRIP OF 20 MILES, WITH NO STOP-OVER

Otto T. Bannard
NOMINATED FOR MAYOR BY THE FUSION PARTY



Judge William J. Gaynor
TAMMANY'S NOMINEE

William R. Hearst
THE CHOICE OF INDEPENDENCE LEAGUE MEMBERS

ONE OF THESE MEN WILL BE NEW YORK'S NEXT MAYOR

Railroad Signalling

By Col. Henry G. Prout

AT the end of the year 1908 we had in the United States, according to *Poor's Manual*, 232,045 miles of railroad. On the same date, according to the Interstate Commerce Commission, 59,549 miles of this railroad was worked under the block system. A little more than one-fourth of the total mileage of railroads of the United States was block-signalled. In Great Britain not a mile of railroad can be worked for passenger traffic unless it is protected by some kind of block signalling acceptable to the Board of Trade.

Last year was fortunate, on both sides of the Atlantic, in the small number of persons killed in train accidents; but year in and year out we have to face figures showing the immensely greater number of casualties to persons in this country than in Great Britain. However we think of the subject, whether it is relatively to the total number of passengers carried, or to the passenger-miles travelled, or to the passenger train-miles run, we find that every year we in the United States kill and maim many more people in train accidents than are killed and maimed in Great Britain. Looking further, we find that the British government compels the British railways to protect by block signals every foot of track that carries passenger traffic, and in this country only a trifle more than one-quarter of the railroad mileage is worked under block signals.

A deduction often made from these quite well-known facts is that the Federal and State governments should compel the railroad companies to put in block signals. Legislation designed to bring that about is introduced at Washington and at the State capitals, and year after year recommendations are made by the various commissions for the passage of more laws. It has long been my notion that such laws are undesirable, inexpedient, and in the long run pernicious, but probably Huxley would have called me an administrative nihilist, and would have found convincing arguments to prove that the governments should intervene in this matter. On the face of the records alone the experience of the two great branches of the English-speaking people would go a good way to sustain the position of the advocates of government intervention, and perhaps enlightened selfishness does need an occasional jogging from a higher power. But the records should be used with knowledge of some of the facts back of them.

It seems possible that the result of government intervention in this matter would be disappointing, at least as regards saving life and limb. Taking at random quarterly reports of the Interstate Commerce Commission for the last three or four years, we see that of casualties to persons resulting from accidents to moving trains about half are from collisions; but collisions cover nearly all the accidents that can be prevented by signals. Furthermore, of all the collisions reported, an uncertain number, and occasionally a very disastrous one, occur under block signals, because those signals are disobeyed. In other words, if every foot of railroad in the United States were block-signalled, one-half of the deaths and injuries occurring from train accidents might be saved. It might be more than half or it might be less. No man can tell. It should be understood that the commission's classification of "train accidents" does not cover highway-crossing accidents, the running down of tramps and other trespassers, and all the great mass of casualties involving no accident to the train itself. If automatic signals were used some derailments caused by broken rails would be prevented, and some of the derailments at open switches would be prevented; but many more passengers and very many more trainmen are killed and injured every year by falling from cars or engines while getting on or off than are killed and injured in train accidents, and far the greatest death-rate of the railroads of the United States is among trespassers on the right of way. So, while adequate signalling would prevent many disastrous accidents, it is only one of the possible means of improvement.

But there are other gains from signalling that would make it worth while, even if we leave out of sight the possible saving of life.

The greatest service which railroads do for humanity is the cheap, prompt, and regular movement of freight over the face of the globe. That is something that affects every civilized human being every minute of his life, and, indeed, has now come to affect a good many savages. The cheap, quick, and safe movement of passengers is important, but not nearly so important to the world at large as cheap and reliable freight movement. Adequate signalling enables us to get the maximum of transportation out of a unit of track and a unit of equipment and a unit of man. This means economy, and in the end it means cheaper and better public service. An operating officer of a great railroad has lately estimated that if a certain division, about one hundred and fifty miles long, were equipped with automatic block signals, the cost of operating that division would be reduced by $51,000 a year. In three years the cost of signalling would be saved in the resulting economy. The greatest element in this economy is keeping trains moving and so saving the time of train crews and equipment; but a further element, peculiar to automatic signals, is the saving in wages of signal-men and operators. The number of trains that can be moving at any one time over a given piece of track depends upon the efficiency of the means taken to keep those trains from getting together. And obviously, the shorter the blocks the greater the number of trains that can be constantly moving in a given territory. These facts are well shown in the movement over the express tracks of the Subway Division of the Interborough Railway in New York, where automatic signals are spaced eight hundred feet apart. In one day, during the Hudson-Fulton celebration, more than 1,100,000 passengers were safely carried in the New York Subway, a performance that would have been unapproachable without a highly efficient block system.

It has been said above that an operating economy of $51,000 a year could be made on one quite short division of a certain steam-operated railroad by the use of automatic block signals. This is typical. But furthermore, it often happens that a heavy investment in double-tracking may be postponed by adequate signalling, increasing the capacity of the single track.

These conditions are well understood by the officers of railroads and are reasonably well known to railroad directors. They stand ready to carry protection forward rapidly but judiciously. Technically the signalling art in the United States is considerably ahead of any other country, in the variety and quality of engineering knowledge and skill that have been put into it; so, the rapid extension of protection by signals is mostly a matter of money. Only the rich can be really economical. If you cannot get cash or credit to put in your year's coal in June, you must buy by the scuttleful and pay twice as much in the end. If the people of the United States and the Federal and the State governments wish their railroads protected they must not destroy their earnings and their borrowing power.

No one else is so keenly sensible of the misery of killing and maiming people on the railroads as the railroad officer himself. No one suffers more in mind when a fatal accident occurs. No one else understands as he does the economics of the case, for it is his business to produce net earnings. He does not need to be forced, he only asks to be allowed, to earn the money and establish the basis of borrowing power.

All other forces, acting to retard railroad improvement and development in signalling and in many other ways, become trifling and insignificant when compared with the destructive effect of those attacks on credit and on trained and efficient administration which pass under the name of regulation, not merely in finance and accounting, but in actual details of operation. In the one matter of safety for those who travel and for those who work on the railroads, nothing else is so important as discipline and a high sense of duty among the men. Mechanical appliances are insignificant compared to the moral element in railroad operation. But it is the opinion of many well-informed men, and I have no doubt of the correctness of that opinion, that the standard of discipline and of duty is steadily falling as the result of at least two forces, first, the cultivation of the theory that those who are responsible for the policies and operation of railroads are criminals or semi-criminals, and second, the spread of the notion that the men are responsible, not to the companies that pay them or to the officers set over them or to the public that they serve, but to brotherhoods which make their own laws and set up their own standards of conduct. Naturally the operation of these two forces must come to an end some time, for they violate the basic principles on which organized society has been built up, but in the meantime we are bound to pass through much suffering. We may even go through the calamities of government ownership of railroads, and of having our army, our navy, and all our public utilities run by a commune. That is the logical end of the present notion of regulation, but it is hard to imagine that the American people will be such fools.

Foundations that will Endure

By Daniel E. Moran

THE commerce of nations, developing along the lines of least resistance, blazes its trails along the waterways of every country. Where land and water traffic meets, where ocean steamers exchange with inland lines of transportation, there commerce makes its exchanges, reshipments, purchases, and sales, and there it demands wharves and warehouses, banks and offices—and there are developed the great cities of the world.

The conjunction of land and water, however favorable to the development of a great city, bodes trouble for the builder seeking suitable foundation. The alluvial deposits found near the mouths of rivers, the fine sands of beaches, and the mud banks of bays and harbors are not suitable materials on which to impose great weights. The sites of great cities have just such materials on which to found their buildings. London and Chicago are built on deep beds of yielding clay; Cairo, New Orleans, the North German and Dutch ports, are located on delta formations; the site of St. Petersburg was a marsh; the City of Mexico floats on a thin crust under which is an almost bottomless lake of mud. New York has a backbone of rock, but in the southern end of the island the rock is covered with a bed of treacherous quicksand. The adjacent shores of New Jersey, where the principal freight handling is done, are little better than banks of oozy mud.

In addition to the natural disadvantages of such locations, the growth of a city and its facilities adds new difficulties. The land surface is extended by making filled ground, and the waterways are extended by dredging for canals and docks. The requirements of business are such that the heaviest buildings have to be built in proximity to the water-front. Therefore, the builder of to-day meets in the great cities the old problem of supporting a building on poor natural material, and the problem is frequently most difficult and complex.

The most evident method in such cases is to reduce the load on the soil by enlarging or spreading the footing courses of the building. It is an old device to employ wide flat stones for the footing course of a wall and to thicken the walls below the surface of the ground. In many important New York buildings antedating the sky-scraper period this was carried to such an extreme that the foundations covered nearly the entire area of the building and took up practically all of the cellar. Chicago builders improved on this by embedding steel rails in concrete under the walls and below the cellar level, the rails distributing the loads over a large area without occupying any cellar space. Steel beams and girders now take the place of the rails, and recently, since the advent of reinforced concrete, many buildings rest on thin mats or slabs of concrete rendered surprisingly strong by interwoven rods of steel embedded in the concrete.

Frequently, however, spreading the footing does not afford sufficient support, and, moreover, no floating foundation affords security to the building if the soil below the footing fails by moving bodily from under the building, as frequently happens when adjoining excavations are carried sufficiently deep.

In these days of double and triple decked cellars and of subways and sub-subways, it is advisable to avoid this contingency and where possible to carry the foundations of the building to a firm stratum of gravel hard-pan or solid rock. If the ground is permanently saturated with water wooden piles will last indefinitely and may serve admirably. The lamentable failure of the Campanile of Venice, while not due to any fault of the foundation, disclosed the fact that the wooden piles driven one thousand years ago were still sound and serviceable, and they form to-day part of the reconstructed building. Where wooden piles are liable to decay concrete piles may be used, and reinforced concrete piles are driven by a pile-driving machine very much as wooden piles are, or they may be built in place by a method of forming first a hole in the ground and then building a pile in the hole.

In the case of the tallest and heaviest buildings nothing, however, serves so well as massive concrete or masonry piers carried to rock. Where the rock is near the surface and there is not too much water in the soil an open pit is excavated down to the rock and a brick or concrete pier is erected. It is generally necessary to support the sides of such excavations with planks or in deep and wet excavations with interlocking steel beams. In the dry Chicago clay such open pits have been dug to depths of one hundred feet and over. In locations where the rock surface is below water-level the engineer is called upon to overcome the great difficulties of under-water excavation, and the pneumatic caisson method is employed to sink great monolithic piers of concrete through perhaps one hundred feet of quicksand and water to the bed-rock.

This method calls for radical measures and is worthy of description. Imagine a huge box as long and as wide as the required pier and high enough to allow a man to stand upright inside the walls. The enclosed space is the working-chamber—so called, as it affords a space in which the work of excavation is done. The box has no bottom, but the sides are massive to support the weight of the pier which is to rest upon them. This structure rests on the lower edge or "cutting edge" of the box, and is placed in the exact location of the desired pier. When located and made level the construction of the pier begins. Concrete is placed on top of the box (inside a temporary form or mould), forming a monolithic pier, solid except that a steel pipe placed vertically in the centre of the pier affords a passageway for men and material from working-chamber to outer air and *vice versa*.

When the concrete pier is about thirty feet high men enter the working-chamber through the steel pipe and commence to excavate the soil directly under the pier. The walls of the working-chamber, which are now carrying the weight of the pier overhead, are presently undermined and the whole structure settles. Care is taken to dig uniformly around the sides so as to keep the pier plumb as it settles through the earth. The excavated material is hoisted out in steel tubs or buckets, the buckets being, of course, built of a proper size to pass through the steel pipe. As the excavation progresses the pier settles deeper and deeper. When the men reach the level at which the water stands in the ground the bottom of the excavation becomes wet, and soon sufficient water flows into the working-chamber to prevent further work. Then a boiler-like contrivance called an air-lock is bolted on top of the steel pipe and a new agent is called into action. Ponderous air-compressors are set in motion, and compressed air is forced through pipes which lead down through the pier and discharge the air into the working-chamber of the caisson. The air cannot escape through the pipe because the air-lock is provided with two double air-tight doors, one above the other, one of which is always closed. After a time the excavating gang (popularly known as sand-hogs) enters the air-lock through the upper door, which door is then closed air-tight, the men being in the air-tight space between the upper door and the lower door. A valve admits compressed air slowly so as not to rupture ear-drums, or to do other and more serious damage to the men. When the air-pressure between the two doors equals the pressure in the working-chamber the lower door opens and the men are free to descend to the working-chamber. And they find it dry. The compressed air has pushed the water down to the bottom of the wall of the working-chamber and some air is generally escaping under the wall.

The sand-hogs continue to excavate, the pier continues to settle, the required height of concrete is added on top, and, later, tons of cast-iron blocks are piled on top of the pier to give weight enough to overcome the friction of the soil and the upward pressure of the compressed air.

Finally when rock is reached the surface of the rock is cleaned and concrete is packed into every part of the working-chamber and rammed carefully under the roof, the men backing out to the central pipe as the chamber is filled, and finally retreating up the pipe filling that last hole, completing a monolithic pier extending from the cellar excavation level perhaps one hundred feet to rock.

A pier of this character to be used in the foundation of the new Municipal Building for the city of New York will carry a load of 10,000,000 pounds and will be founded on rock 130 feet below the level of the street.

Sometimes a number of piers are so placed as to form a retaining-wall around the entire lot. Within this protecting wall the entire area can be safely excavated for many feet below water-level, affording space for deep cellars and boiler-rooms.

Such work is not without danger to men and property. The compressed-air workers are subject to paralysis and other evils resulting from the high air-pressures often necessary. Adjoining buildings have to be supported and underpinned, involving frequently extremely difficult and expensive operations. The cost of such foundations is necessarily high. In the case of the new Municipal Building the piers alone will cost over a million dollars. But it is believed that such construction is necessary for the safety of the great modern structures, and it is believed the work will endure for ages.

The Evolution of the Printing-Press

By Richard M. Weaver

TO John Gutenberg, a native of Mainz, Germany, belongs the honor of having been the first to print from movable types—an innovation of about the year 1450. Since the beginning of the Christian era the Chinese had practised the art of printing, but that was the crudest of methods and consisted simply in taking impressions from engraved blocks. Gutenberg's press had a flat "bed," upon which the type was placed, and, after the form had been inked with a ball of leather stuffed with wool, the paper was spread over the form and a piece of blanket laid on this paper to soften and remove inequalities of pressure when the wooden "platen" was screwed down upon the type. Although the machinery of printing is now most intricate the general conformation of the type is the same as that used by Gutenberg more than four and a half centuries ago.

The first recorded improvements in the Gutenberg press were made about 1620 by William Jensen Blaeu, a printer of Amsterdam. A device for rolling the bed in and out was the principal difference, and this type of press was the one used in England when Benjamin Franklin worked there as a journeyman printer. The Earl of Stanhope, in 1798, introduced the use of a cast-iron instead of a wooden frame, and in 1816 George Clymer, of Philadelphia, devised an iron machine, entirely dispensing with a screw. Six years later Peter Smith, an American, built a superior hand-press, and Samuel Rust, of New York, in 1827, further improved upon this. His patent was purchased by a New York manufacturer, who remodelled the machine and placed it on the market as the "Washington" press. They continue to be manufactured, and at the present time are used for taking fine proofs.

Until the middle of the nineteenth century the bed and platen system was the favorite method of printing fine books and cuts. On this same principle was built the first "power" or steam press by Daniel Treadwell, of Boston, in 1822. Isaac Adams, of the same city, devised a better press of the same general type, and this machine, with some added improvements, was manufactured with great success, but it has gradually been superseded by the cylinder press.

As early as the fifteenth century copperplate engravings had been printed from a form carried on a flat bed beneath a cylinder. These machines were rude in form, but they finally inaugurated an entirely new era in the history of the printing-press. Innumerable patents were granted for improvements upon this principle, but a Saxon, Friederich Koenig, has the credit of actually introducing into use a flat-bed "Cylinder Press." He worked such a machine in London in 1812, and two years later patented a continuously revolving "Cylinder Press" which could print eight hundred sheets per hour. Many ingenious devices in connection with the movements of such presses were patented by various men, probably the most notable of them being the introduction by Napier of "grippers" or "fingers" for conveying the sheets during the actual operation of printing. In 1832 the single and double small cylinder presses and large cylinder perfecting presses were constructed.

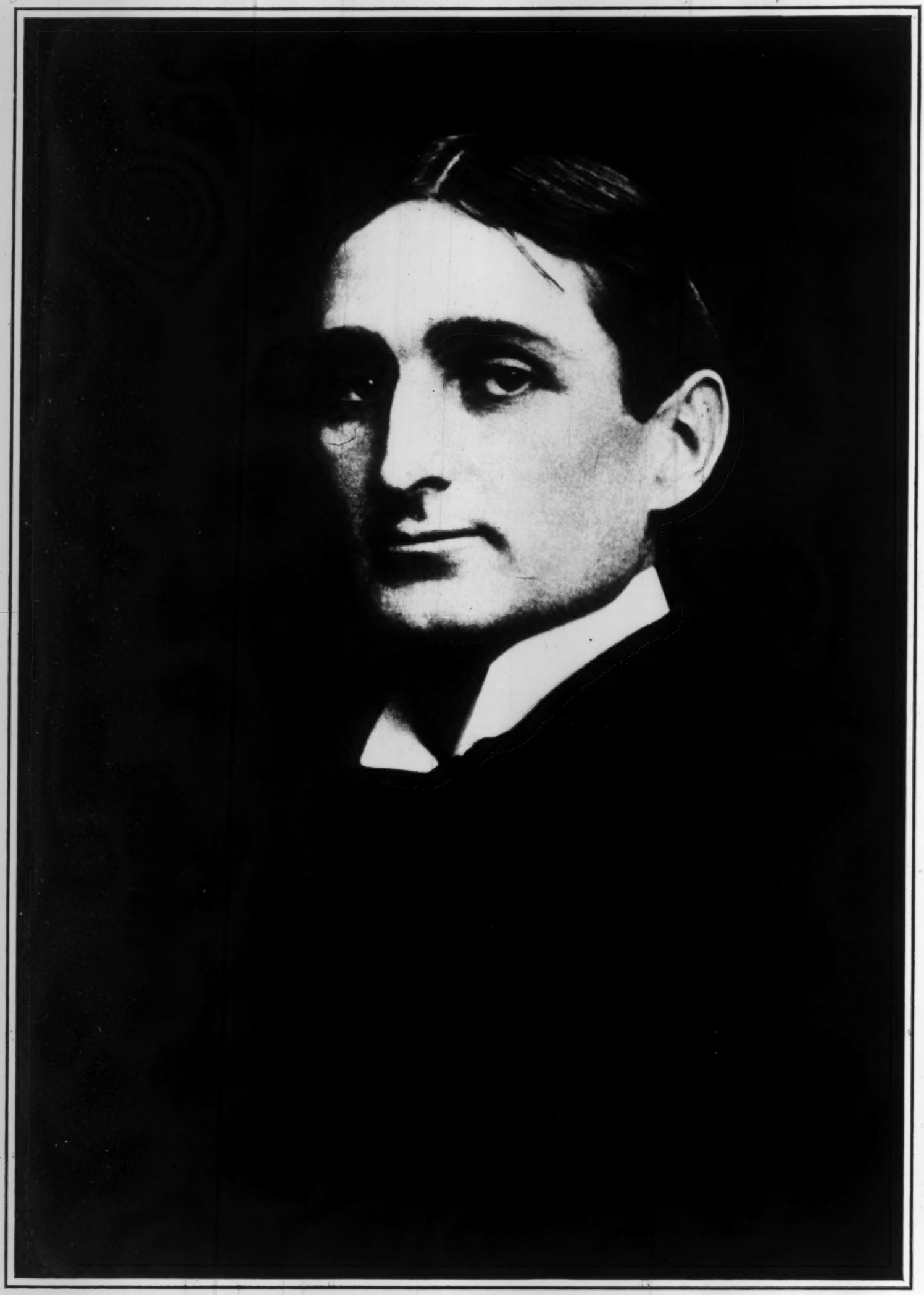
Book, job, and woodcut printing methods kept stride with the improvements in the newspaper presses. The "Single Large Cylinder" gradually replaced most of the others. The finest letterpress and woodcut work of to-day is turned off by the "Stop Cylinder Press," patented by a Frenchman, Dutartre, in 1852. Aided by its many improved features, this machine is able to do work which heretofore was believed impossible by any except hand-presses. Rotary presses, able to print in two colors, are in successful operation in this country.

The ever-increasing circulation of our daily papers continually demanded speedier newspaper presses. The "Single Cylinder Press" reached two thousand impressions per hour, and the "Double Cylinder" gave twice that amount, but this was far too slow. In 1846 there was manufactured the first "Type Revolving Machine," where the forms of type were fastened on a central cylinder placed in a horizontal position. By increasing the number of impression cylinders this type of machine reached an aggregate speed of 20,000 papers per hour printed upon one side. When the process of casting stereotype plates on a curve, by using flexible paper matrices upon which the metal was cast in curved moulds, the "Type Revolving Machine" was adapted to receive such plates.

The possibilities of a machine which should print both sides at once from a roll of paper had been discussed by Sir Rowland Hill in 1835, but not until 1865 was such a press constructed. It was the invention of William Bullock, of Philadelphia. In 1871 the rotary press was perfected to print from a continuous web of paper, and there appeared to be no limit to its capacity except the ability of the paper to stand the severe strain. When at top speed 18,000 perfect papers could be delivered accurately on one feed-board every hour.

The "Double Supplement" machine, producing twelve-page papers at 24,000 per hour, was the next advance, only to be followed in 1887 by the "Quadruple Newspaper Press" having a capacity of 48,000 eight-page papers every hour. All previous records were eclipsed in 1891 when appeared the "Sextuple" machine, a monster weighing fifty-eight tons. It could print, cut, paste, fold, count, and deliver 72,000 eight-page newspapers in one hour, being fed from three rolls of sixty-three-inch-wide paper. This is equal to fifty-one and three-quarter miles of newspaper of the ordinary width, which that press could stack in piles of fifty at the two delivery outlets every hour.

The "Double Sextuple" machine was the next of the mammoth presses and was composed of two separate, complete printing mechanisms. It was 35 feet long, 17 feet high, and 9 feet wide, weighing approximately 112½ tons. When printing all black its capacity is 96,000 twelve-page papers per hour. But not satisfied with this remarkable product of mechanical ingenuity, the manufacturers have made another advance and the "Double Octuple Newspaper Perfecting Press" is the largest printing-machine in existence. Running at full speed for one hour this giant of the press-room will print, cut, fold, paste, and count 200,000 eight-page papers, or 55 5-9 eight-page newspapers every second.



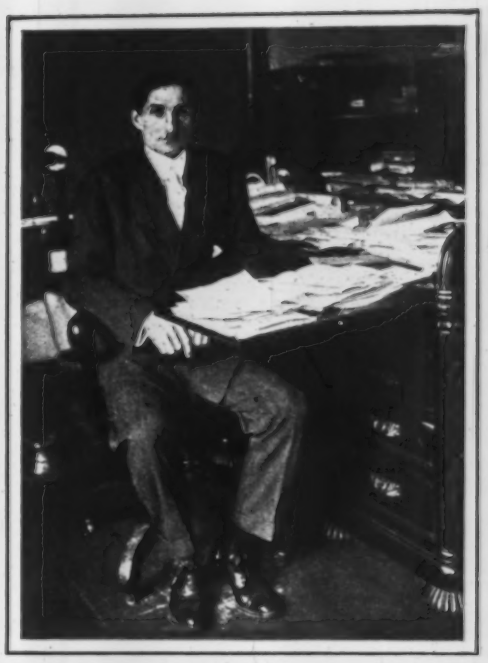
WILLIAM GIBBS McADOO

The young lawyer-railroad man from Georgia, an altruist but a money-maker, who has linked New York City to the American continent with tunnels under the Hudson River—an enterprise which had a long history of failure before he took hold

Celebrities at Home

William Gibbs McAdoo

By William Inglis



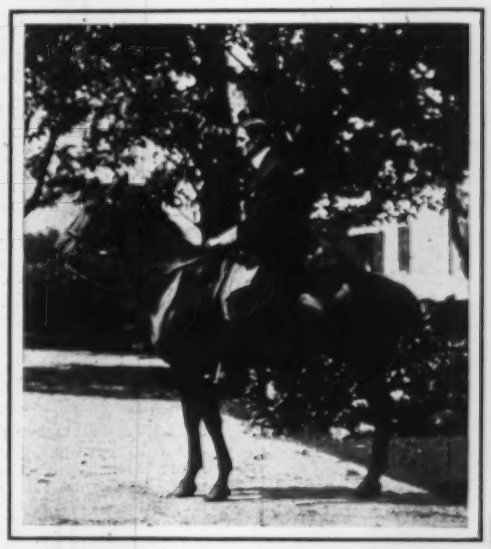
The idealist captain of industry at his desk in the Hudson Terminal Building

IMAGINE a calm, smiling young man of high ideals and incessant energy, full of hope which no disappointment can quench, a philanthropist who is actually making altruism pay good dividends on an investment of sixty millions of dollars, a dreamer of great dreams that have come true before one hair in his head has turned gray—and you have a sort of sketch of William Gibbs McAdoo, the genius who has linked Manhattan Island to New Jersey and all the West by groups of tunnels under the Hudson River. What manner of man is he; how does he work and play; on what terms does he live with his fellow men? These are hard questions to answer, for his is one of the most reticent personalities in the world, and he avoids the interviewer as adroitly as a half-back eludes a tackle; yet this writer has followed for years the man's career, has watched him at work and, at intervals far too rare, at play, so that he feels able to describe with accuracy at least his most striking characteristics. Two qualities in him overtop all the others—humanity and persistence. He seems the personification of one of Bellamy's supermen, devoting his wonderful energy and skill and power of organization to the benefit of all mankind who may come within his influence, yet while he accomplishes this purpose the company he has organized is making good profits out of its highly developed altruism. When one considers the great work he has done and the kindly principle that animates it, there comes a strong temptation to throw down the pen and let the story go unwritten; for it seems impossible that people of this age can believe in the existence of such a man. That a captain of industry of this type will some day be developed appears likely enough, for the whole history of the human race is one of improvement; but it is too much to ask any one to believe that he is here now, has been here for years, has an office in a skyscraper down-town and a home up the Hudson, where he lives with his family like any other well-to-do citizen.

Mr. McAdoo was born near Marietta, Georgia, on October 31, 1863, of a Scottish family that settled in North Carolina some three hundred years ago, and furnished many able warriors in the Revolution and the War of 1812. His father, William Gibbs McAdoo, had served as a Lieutenant of Volunteers through the Mexican War, and was twice attorney general for the Knoxville Circuit of Tennessee. He fought in the Southern army throughout the Civil War, and at the close of hostilities found himself stranded with his family at Milledgeville, Georgia. General Sherman in his march to the sea had devastated all this part of the country, and the McAdoos found themselves reduced from affluence to the most extreme poverty.

The first fourteen years of the life of young McAdoo were spent amid these surroundings. The poverty of the people was so great that the struggle for existence was often tragic. He underwent all of the privations of the grinding poverty of that period. It was a lawless time and a trying time for the people of the South. The Reconstruction Period, with all of its horrors and humiliations for a proud people, endured through fourteen years. People lived in nightly terror of the Ku Klux, a body first organized for the protection of the law-abiding whites, which afterward, falling into the hands of the lawless element, became an instrument for all kinds of atrocities and oppressions. In a speech delivered at Hoboken before the Board of Trade, in the winter of 1908, Mr. McAdoo said: "I was brought up in Georgia in the path of General Sherman's famous march to the sea. As Henry Grady once remarked, 'General Sherman was a bit careless with fire,' and for this reason, among other things, he never has been a popular man in Georgia. For myself, however, I feel that I owe General Sherman a debt of gratitude. He produced conditions and an environment which made it necessary for the individual to develop every resource and every power with which nature had endowed him, in order to exist. I believe that character is produced and developed to the highest degree by hardships, suffering, and poverty. I have never doubted that whatever of character and capacity I have developed has been, in a large measure, due to the surroundings and conditions which General Sherman forced upon the people of my section during that great war."

In order to appreciate the man as he is to-day it is helpful first to study attentively his early history



Like all Southerners, Mr. McAdoo is extremely fond of a good horse

of struggle and the various phases of toil and study that peculiarly fitted him for the conquest of the Hudson River. His father accepted the chair of English and History in the University of Tennessee in order to help his boys to a college training. After attending the public schools of Knoxville, young McAdoo entered the University of Tennessee, but he left college in 1882, his junior year, to become deputy clerk of a division of the United States Circuit Court, so that he might support himself while studying law. He was admitted to the bar of Tennessee in 1884, and notwithstanding his extreme youth, became division counsel in that State for the company which presently was acquired by the Richmond and Danville Railroad Company. In this employment he studied for years, and with microscopic attention to detail, every ramification of the railroad business. In litigations over right of way, over accidents and the scores of other things that bring gray hairs to railroad managers, the young lawyer obtained a very thorough and practical education in the railroad profession. He rode on locomotives, he spent many hours on trains, he questioned every one who could give him any information upon the complex matters of railroad-building, maintenance, and operation. All these facts and theories he stored away in a memory of unusual grasp and distinctness, never dreaming that they would one day serve him well in what was to be the great achievement of his life.

While still in the twenties Mr. McAdoo acquired the controlling interest in and became president of the Knoxville Street Railroad Company in Tennessee. This was a sad and grinding experience, for electricity was just beginning to take the place of mules as motor power for street-cars, and the appliances for generating and using the current were primitive, costly, and delicate. Every time the controller-box of a car was burned out it took one or two days' receipts to buy a new one. Slowly but steadily and inevitably the little street railroad company was forced out of existence, to go through the throes of reorganization. But in the years that elapsed before a receiver was appointed Mr. McAdoo was learning the street-railroad business as thoroughly as he had acquired the details of the bigger roads; and all this was ammunition and equipment for the great campaign that lay still undreamed of before him.

The young railroad expert come to New York in 1892, and engaged in the practice of law, having also an interest in a firm that dealt in investment securities. He entered, in 1898, into partnership with William McAdoo, formerly representative in Congress from New Jersey, Assistant Secretary of the Navy, and Police Commissioner of the city of New York. The law partners were not relatives, although they bore the same name.

It was no sudden stroke of inspiration that started Mr. McAdoo on his career of tunnel-building. Necessity was truly the mother of his invention. For years he lived in New Jersey and was a daily commuter between his home and his office. Many times he was delayed on the river by fogs or fields of ice that made ferry navigation slow and dangerous. How could these delays and perils be avoided? The answer was obvious—by running cars through tunnels under the Hudson River. Mr. McAdoo began to study the problem. And the first thing he came upon was a sad history of bright hopes that ended in failure and tragic death of men engaged in the task. DeWitt Clinton Haskins had actually begun to build a tunnel from Hoboken toward New York in 1878, but a serious disaster almost at the outset had cost many lives. Work was resumed, but after two years of effort and the building of eighteen hundred feet, was stopped for lack of money. Again the task was undertaken, in 1891, but when the tunnel heading had been advanced thirty-seven hundred feet from shore it had to be abandoned because the company failed.

There is no need to recall here all the history of that time, for much of it has been published recently. For many months Mr. McAdoo studied the problem of tunnel-building, examined with great care the work done in the New York Subway, consulted eminent engineering authorities, and at last convinced himself that the project was feasible. But how was he to convince men with money that the project was feasible? There was a task as gigantic and formidable as the physical task of carrying the railroad under the river bottom. Through what a troubled sea

The fine old spacious house at Irvington-on-Hudson where Mr. McAdoo and his family reside

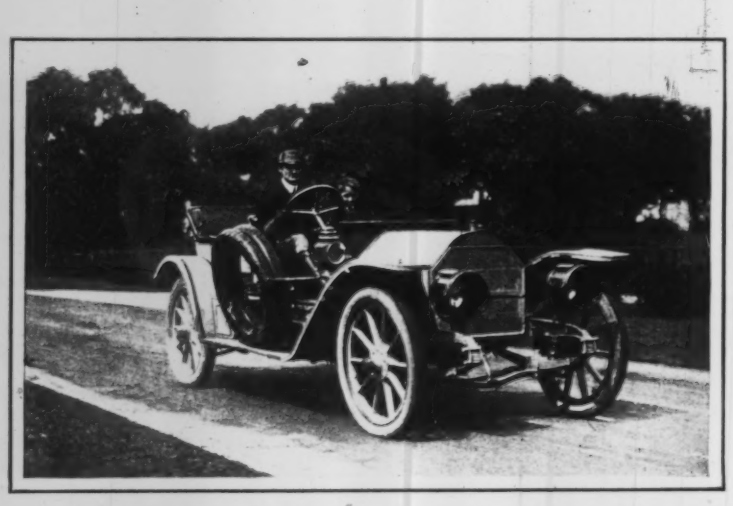
of rebuffs, disappointments, doubts, and heartbreaking refusals this man swam for many weary days any one who has tried to finance a proposition in coldest New York can easily imagine. One guesses the magnitude of the job and the bitterness of hopes often dashed to the ground by Mr. McAdoo's reticence on the subject. All that his friends have ever heard him say about it is that "it was a period of great difficulty"—which is a very gloomy admission for one of his sanguine temperament to make. Nevertheless his persistent striving achieved its just reward, and a company of supporters, headed by Walter G. Oakman and Pliny Fisk, was organized in 1902 to take up the work where it had been left off.

When the old enterprise was abandoned in 1892 the tunnel was approaching a point in the river where the water was deepest, and where a rock reef stood athwart its path, rising at no place above the diameter of the tunnel, so that an unusual engineering problem was presented, namely, to construct the bottom of the tunnel through this rock reef and the top of it through the silt under the Hudson, at a point where the water was sixty-five feet deep, and where the amount of cover between the top of the tunnel and bottom of the river was only about thirteen feet in thickness. The blasting of the rock in the bottom, together with the use of compressed air in the tunnel, agitated the silt overhead at all times, causing great danger of a cave-in of the silt and the flooding of the tunnel itself. After Mr. McAdoo's company took hold of the work this actually happened on two occasions, but not a life was lost nor was there any injury to the work itself.

How the first tunnel was carried to successful completion in the face of many difficulties, and it in turn became the predecessor of many others already built, building, or about to be built, are facts known to everybody. The incidents given here are recited merely to form a background against which we can get a clearer view of the man who planned the battle and bore the brunt of it.

Let us look at him as he is to-day, and incidentally as he must have looked when he first appeared in the metropolis a dozen years ago, for in spite of the arduous struggles he has undergone one cannot find any new lines in his deeply graven countenance, or one thread of silver in the thatch of blue-black hair that hangs straight, thin and silky from the top of his round, broad, tall head. Six feet one and a half inches he stands, but he is so slender that he weighs little more than one hundred and forty pounds. Instinctively one compares him with a live wire. Every fibre of the man bristles with energy. It is hard to imagine him in repose even when fast asleep. Whether working or playing, he always goes at full speed. Yet he is gentle and not rapid in speech, his voice low and musical, the voice of a Southern gentleman.

Mr. McAdoo and his ten-year-old son, Robert Hazlehurst



The tunnel pioneer finds his chief recreation in running a high-power motor-car

The eyes, wide apart, deep-set beneath bulging, overhanging brows, are of mottled gray and brown hazel, with the brown tint predominating. The forehead is broad and unusually high; although it slopes backward so sharply that one obtains a just perception of the height only from a profile view. The nose is aquiline, high, and long, the nose of a conqueror; the mouth broad and mobile with rather thin lips that turn humorously upward at the corners. The depth and breadth of the jaw and out-jutting chin are significant of the fighting man who does not know how to stop for anything but victory. There is in the long, gaunt, powerful frame, the rugged features, and the sad though kindly and humorous eyes a curious likeness to the best portraits of Lincoln. And, in view of his Southern origin and intense sympathies, it is remarkable that, of all the men of fame, all the doers of great deeds that this civilization of ours has produced, Lincoln is the one he most admires, whose history he most eagerly devours.

"Lincoln," he said lately to a friend, "will constantly grow in the admiration and affection of the people. His courage, his shrewdness in judging men and divining their motives, his unflagging devotion to the cause of the Union, all mark him as a great man; but of all his fine qualities the greatest was his broad, tolerant humanity. He really loved his fellow men, regardless of section or race, and gave all that was in him to their service. Every one who knows him or who reads his history fairly is conscious of that splendid quality in him—the kind and gentle heart with malice toward none and charity to all. And every man who enjoys or hopes to enjoy the esteem of his fellows must be inspired by that spirit toward them. Any shrewd schemer can pretend to have that quality, and his pretence may last for a while, but he will soon be found out. And no matter how clever or powerful or successful he may become he can never be reckoned great, because he will lack the sincere esteem of mankind."

When this lawyer-railroad-man began his gigantic digging job under the treacherous river floor he gathered an efficient army of enthusiasts around him. From the beginning the tunnellers worked in an oppressive atmosphere of compressed air which was necessary to keep the head of the tunnel bore from being caved in by the pressure above. The utmost precaution was necessary in using this heavy air as a bracer against the mud, for it put an unusual tax on the heart and might kill any man whose heart was weak. Mr. McAdoo was in and about the tunnel at all hours of the day and night. Whenever the job was especially dangerous or difficult he was at the danger-point rallying his forces. He led his men in, did not send them in. And I remember that when the tunnel borings from opposite sides of the river met each other in midstream and an army of reporters was invited to march from New Jersey to New York as the first guests of the company, none of us could find out anything from Mr. McAdoo about Mr. McAdoo. He poured a torrent of facts and figures upon us about the tunnel and the passengers it would carry, grew eloquent over the men who financed the undertaking, and especially over Chief-Engineer Charles M. Jacobs, who, he said, had done all the hard work; but on the subject of McAdoo he was dumb. The only way we could get his photograph was by persuading him to stand beside Mr. Jacobs when the camera was used.

It was about this time that a doctor told Mr. McAdoo he'd better keep out of the tunnel because the long exposures to compressed air had weakened his heart; that he must not climb stairs or hurry for a car or run an automobile, or do anything exciting.

"And what will happen if I disobey you?" he asked.

"You'll cut ten or fifteen years off your life," the doctor replied.

"Well, if they're cut off the end and not out of the middle, I won't mind," said Mr. McAdoo. "I've got this job on hand and it has to be finished. I'll be as careful as I can." Whereupon he continued to climb stairs and hurry for cars and went into the compressed air, though only so often as was really necessary—which was pretty often. And when he had occasion to inspect the steel-work on the new Hudson Terminal Building a few weeks later, he tucked his foot into the steel hook at the end of a long rope that dangled from above the roof, and, gripping the rope with his right hand, was hoisted by the derrick all the way from the sidewalk to the top of the building, standing erect and going slowly all the way so as to make a careful scrutiny.

"What if your heart had failed you?" a friend asked him a few days later, when the story got out.

"But it didn't fail," Mr. McAdoo replied, with his quiet smile. "As a matter of fact, I think that little trip proves my heart's all right."

When the first tunnel was well under way Mr. McAdoo became convinced that the plan would have to be greatly enlarged if the system was to be a success, so an additional bore was begun in order that a train crossing in either direction should have a tube to itself. Then he conceived the plan of connecting the Pennsylvania Railroad in Jersey City with downtown New York, also of giving the other railroads a chance to shoot their passengers underwater to town in three minutes, instead of wasting their time in antiquated ferryboats. Thereupon he went down to Philadelphia and called on President Cassatt, of the Pennsylvania road. The president was polite to the stranger, but brief.

"What can I do for you?" he asked.

"I just want to take your ferries away from you," Mr. McAdoo modestly replied.

"How? Why?" the president wanted to know. Mr. McAdoo explained to him in few words, but very forcibly, the advantages of tunnel travel. President Cassatt asked him to return next afternoon for his answer. Mr. Cassatt called a special meeting of the directors next morning, and when the board assembled said to them: "A young man wants to take our ferries away from us. You know they're profitable; but there will be a bigger profit for us if we accept his plan. I think he's right, and we'd better go with him." And when the young man came in for his answer that afternoon the answer was yes, and as a result thereof every Pennsylvania commuter nowadays, as well as those of the Lackawanna and Erie roads, saves nearly a quarter of an hour on each journey between his home and his shop. In short, every one using the tunnel has half an hour added each day to his life at home or at work, thanks to the young man who wanted to take the ferries away from Mr. Cassatt. And if the cultivator of two blades of grass is a benefactor to the race, what shall be said of him who adds half an hour of time each day to the lives of hundreds of thousands of men?

There are so many interesting things to be told about the man, and anything less than a book provides so little space for the telling, that the writer is forced to obtrude a few more incidents here, even at the risk of being out of order. When the Hudson Terminal Building was erected upon the two blocks extending along Church Street from Cortlandt to Fulton, Mr. McAdoo found himself in charge of two enormous skyscrapers twenty-two stories in height and housing ten thousand men and women daily. He sent a memorandum to the superintendent of the building asking him to have printed and bound up in convenient blocks one hundred thousand blank complaint forms, so that any tenant wishing to find fault with his accommodations could fill in a line or so and sign his name. The superintendent came up in hot haste.

"Of course, I'm going to carry out orders," he said, "but I've been in real estate for twenty years and a superintendent of office buildings twelve years. I hope to goodness you won't give out those blanks."

"Why not?" asked Mr. McAdoo.

"Because they'll simply encourage the tenants to kick," the superintendent protested. "If you make it so easy for them to complain they'll flood you with complaints."

"Just what we want," said Mr. McAdoo. "If the complaints are foolish we can write polite answers to prove it, and if they are well founded it will be the greatest help in the world to us to know where the faults lie. In either case we shall please our tenants and keep them with us."

Which was good prophecy. Very few of the complaint blanks have been used, and the tenants are happy. The idea back of the incident is the idea that dominates the entire enterprise—profitable altruism, enlightened self-interest, to put the thing in its least

(Continued on page 32.)

Little Miss Sally McAdoo and her pet spaniel puppy

The Valor of Ignorance

THE VULNERABILITY OF THE UNITED STATES TO ARMED INVASION

By Gen. Homer Lea

THE FIFTH OF A SERIES OF GRAPHIC AND CONVINCING ARTICLES DEALING WITH THE MILITARY OCCUPATION OF THE PACIFIC COAST BY THE FORCES OF JAPAN

WHILE the seizure of Hawaii and the Philippines includes, by the mere fact of their possession, all other insular territories of this Republic, as well as Alaska, and the naval supremacy of the Pacific, yet their occupancy is only incidental to Japan's main objective. In other words, the possession of the Pacific coast would have the same effect in establishing Japanese supremacy over these territories as would their direct seizure. As a game of chess is won by position, so, in this approaching conflict, the king's square toward which Japan moves is the Pacific coast. That Japan will in the beginning of the war take possession of these insular territories is manifest, because their occupation will cost her no appreciable effort nor detract in any degree from the naval and military power necessary for the conquest of the mainland. The occupancy of these territories will be relegated to the second line of reserves, fleets of protected cruisers and second-class battleships, leaving the principal naval and military forces intact.

While Japan is occupying Hawaii and the Philippines a fleet of transports carrying one hundred thousand men, convoyed by battleships, armored cruisers, and torpedo craft, makes its way across the Pacific. Steaming at ten knots an hour, this fleet will reach the Pacific coast within five or possibly four weeks after the declaration of war. Then somewhere on fifteen hundred miles of seacoast will these armies be debarked and the invasion of the United States begun.

The principal consideration that now concerns this Republic is the defence of the Pacific coast, for once it passes under the military sovereignty of Japan, the Pacific and its possessions are not alone lost, but the fairest and richest portion of the Union. If Japan once gains control of Washington, Oregon, and California, these States will not only be segregated from the rest of the Union by her armies, but by uninhabitable deserts that moat their eastern frontiers and mountains that rampart them. No number of men nor amount of treasure, as we will hereafter show, can bring about their restoration. The defence, therefore, of the Pacific coast depends solely upon the power of the Republic to prevent Japan from gaining a foothold. To rely upon the untried hope of reconquering these coast States is but the slothful procrastination of that evasion and national vanity now so rampant in the Republic.

Primarily, the defence of the Pacific coast belongs to a navy. But so long as the necessary naval expansion of the Republic remains circumscribed by venality and ignorance, as well as public indifference, it is impossible to foresee the time when the Pacific coast will be defended by a navy powerful enough to prevent invasion by Japan. So long as it continues to be the policy of this nation to maintain a navy in its present proportion to the navies of other powers, then that navy, as has been shown, must remain united in one ocean; and, as the Atlantic constitutes the most vital naval sphere of the Republic, it will be necessary to continue it in that sea.

When Japan declares war, one of two naval conditions will be existent: either the American Navy will be divided between the Pacific and Atlantic, or the whole of it will be in the latter sea. Either condition will insure instant Japanese naval supremacy. A division of the American Navy means the destruction of those portions in the Pacific; while the fleets in the Atlantic will have no effect upon the conflict, whether they constitute the remaining portion or the entire Navy.

In the time of peace, under the most favorable circumstances, it required four months for an American fleet to pass from the Atlantic bases to the Californian coast. But unfortunately there are many conditions in the time of war that would curtail, hinder, or prohibit this transference.

During hostilities the fleets of this nation can make no use of South-American ports, as was recently the case in the transference of the battleship fleet to the Pacific. International laws prohibit belligerents from sending more than three war-ships into a neutral port at one time. They cannot remain longer than twenty-four hours and cannot take on men, munitions, nor supplies other than enough coal to proceed to the next port. The same ships cannot again enter that port within a space of three months. These prohibitions force the American Navy in transit to depend entirely upon auxiliary ships for their sustenance and coal.

We have now come upon this strange paradox: that the mobility or war value of the Atlantic fleets decreases in inverse ratio to their increase in number whenever the theatre of war is in the Pacific. The size of the American Navy even, at this time, prohibits its transference to the Pacific in time of war. The recent cruise of sixteen ships necessitated the chartering of twenty-nine foreign transports, without which they could not have left the Atlantic. When this fleet is augmented by the remainder of the Navy the number of transports must be increased not only proportionately to the increase of war-ships, but by such additional numbers as are necessitated by this nation's inability to use neutral ports. But in the time of war, belligerents cannot charter neutral vessels—a prohibition that deprives this Republic of the means upon which any extended movement of the Navy must depend.

Whenever the naval defence of a nation or any portion of its territory is lacking, or when there is a measurable equality between the navies of the belligerents, the main defence of their respective possessions must be relegated to their military forces. Only when the naval superiority of one nation over another is so positive as to prohibit the hazard of battle can it be said that that nation is in a position to neglect with impunity its military forces and land defences.

In a war with Japan the defence of the Pacific coast concerns the military forces of the Republic rather than the Navy, even if the policy of this government did not prevent the maintenance of adequate naval forces in the Pacific. Under present conditions the defence of Washington, Oregon, and California falls upon the army as completely as though not a single American battleship existed. Notwithstanding this fact, we find that the military defence of the Pacific coast has been as completely neglected as the naval.

The defence of Washington, Oregon, and California against invasion by Japan presents three obvious characteristics:

(1) The long extent of seacoast constitutes three spheres of defence that are so widely separated as to be wholly independent of one another. Their forces cannot be shifted from one theatre of war to another, and they must maintain separate lines of communication with the Eastern States.

(2) The short period of time with which Japan is able to transport her armies to this continent—two hundred thousand men in four weeks, a half million in four months, and more than a million in ten months—necessitates in this Republic a corresponding degree of preparedness and rapidity of mobilization.

(3) Within one month after the declaration of war this Republic must place, in each of the three defensive spheres of the Pacific coast, armies that are capable of giving battle to the maximum number of troops that Japan can transport in a single voyage. This is known to be in excess of two hundred thousand men. If the defence is restricted to any one portion of the coast, it will only have the effect of diverting the attack to one or both of the others.

At the present time there is not in any one of these defensive spheres a full regiment of regular infantry nor two regiments of militia; while in the whole of the Union are not to be found ten thousand infantry of the Federal Army.

During the Spanish War a call for volunteers was issued a few days following the declaration of war, but not until after four months had two hundred and sixteen thousand men been enlisted, assigned, and their instruction begun. At the end of the war they were partially equipped, and were acquiring the rudiments of camp life.

The first defence of the Pacific coast will fall upon such portions of the United States Army as are available, which, under the present military system and necessities, will never exceed thirty thousand men. In addition to this force it is possible that sixty thousand State militia, or sixty-seven per cent. of the organized militia, may be available for immediate service: ninety thousand troops and one hundred and fifty guns in all. These forces are scattered over the entire Union. They must be gathered together, equipped, and brigaded, as well as innumerable other contingencies met and adjusted. When this is done they must be transported by rail over a distance that is practically greater than that which separates the Golden Gate from the Inland Sea of Japan.

We have heretofore made clear that distance, in a military sense, is never measured by miles, but by the rapidity and capacity of the means of transportation. The efficiency or lack of these means correspondingly decreases or prolongs the intervening spaces over which armies and their supplies must pass.

The Pacific coast has not a single point upon which the railroads crossing this continent converge. The roads that enter Washington and Oregon have no relation with those that go to California. They start from a different base and traverse another region. In a war on the Pacific coast, troops cannot be despatched to southern California by the Great Northern or Northern Pacific or the Oregon Short Line. Neither can troops be sent into Washington and Oregon by the Southern Pacific or Santa Fe. The Pacific coast is, in a military sense, restricted to the maximum of two lines of railway.

Troops for Washington and Oregon must be gathered from the various parts of the Union, together with their supplies, and taken, in all probability, to the vicinity of St. Paul, which would form the main base of all armies destined for those States. Similarly, other and distinct bases must be taken for troops directed to southern and central California.

The transportation of great bodies of troops to the Pacific coast, with their vast amount of supplies and equipment, constitutes a more serious undertaking than confronted Russia in the Japanese War. Russia possessed two manifest advantages denied the United States:

(1) She owned the Siberian Railroad and its equipment.

(2) It traversed a region uninhabited or possessed of a thinly scattered population, more or less primitive in its civilization, and in consequence not dependent upon the railroad for sustenance or maintenance.

When, however, the civilization of a country becomes highly developed and complex, as in this nation, the interdependence of man is increased accordingly. There is scarcely to be found in the Republic an independent and self-sustaining community. Every farmer and town and county in the western portions of the United States is dependent upon railroads, not only for their supplies, but for their funds with which to buy the necessities of life.

The distance from the Mississippi Valley to the Pacific coast is two thousand miles, and upon the few lines that traverse these Western States live a people so dependent upon them that they could not continue their livelihood if deprived of these means of communication. They must not only receive supplies, but their grain, wool, cattle, ores, timber, and other products must be shipped to Eastern markets that they may purchase the means of production as well as the needs of daily existence. This traffic the government cannot stop, and it is the continuance of it during war that will make the transportation of troops and their supplies to the Pacific coast a more difficult problem than confronted Russia.

In the beginning of the War Japan possesses another advantage that is completely denied this Republic. By her vast fleets, her armies are moved in great units and are restricted to no portion of the coast. The United States, on the other hand, can only transport by train-loads. While Japan can land over two hundred thousand men on the Pacific coast in less than four weeks it is apparent that, even if this Republic had that number of men under arms prior to the declaration of war, it would take considerably longer than four weeks to mobilize them in a single theatre of war on the Pacific coast.

In a military sense Japan is one-third closer to Washington, Oregon, and California than is the military power of the United States, and will remain so until all transcontinental railways are double tracked, one track reverting to the government in the event of war.

We will not consider the time it will take to accomplish this mobilization, organization, equipment, and transportation of so many widely scattered units which constitute the American forces, but will pass on to the consideration of their destination. There are two alternatives:

(1) The mobilization of all forces, regulars and militia, in camps of instruction wherein they are to constitute the nucleus of an army of a million men; allowing the Japanese to take possession of the coast without opposition.

(2) To rush these thirty thousand regulars and sixty or forty thousand militia to the coast and dispute the landing of the Japanese.

We do not believe that the first alternative would be entertained by the Republic at large. Rather would there surge over the entire land one thought, echoed on all sides by a single cry: On to the coast!

To what portion of the coast?

If they were sent to southern California, the central part of the State, Oregon, and Washington would still remain defenceless, as if these troops had never been mobilized. If they were sent to San Francisco the same conditions would still hold in Washington, Oregon, and southern California. If mobilized on Puget Sound, then all to the southward would be without protection. It is evident, moreover, that there can be no division of this force. To place thirty thousand men in each of these three spheres of defence would be to sacrifice the whole in detail, without even the ordeal of battle or delay of invasion.

The economic interests of central California approximate those of the south and north combined, while the strategic value is infinitely greater. The San Francisco peninsula is, moreover, the only position in which seventy to ninety thousand men might hold out against the great armies of Japan for any length of time. If San Francisco could be held permanently, and communication kept open with the East, the Republic might, by accumulating its military resources at that point, move in due time against the Japanese forces in southern California or those in Washington and Oregon. These considerations should, in the aggregate, influence the government as well as popular opinion in concentrating the existent military forces on the San Francisco peninsula immediately subsequent to the declaration of war. However disastrous it might prove to leave unprotected the northern and southern coasts, San Francisco constitutes, nevertheless, the true point of concentration under the military conditions now extant in this Republic.

Japan's invasion of Washington and Oregon, the conditions that circumscribe it, and the manner of its accomplishment, constitute the simplest of military problems. The mouth of the Columbia River is defended by three forts. These fortifications are the entire defence of the State of Oregon against invasion, yet the combined power of all their guns is less than that of the guns on a single Japanese Dreadnought.

This is not all.

To man these solitary guns requires sixty-seven officers, one thousand four hundred and forty-six men. According to the Secretary of War, there are now available in these forts but ten officers and two hundred and forty-six men, which means that five-sixths of the guns emplaced could not be used. If these fortifications were not only not lacking in guns and men, but were, on the other hand, a hundredfold more powerful, they would still have no more retarding effect upon the invasion of Oregon than if they did not exist; as will, later on, become apparent.

A STAR IN THE WEST

Miss Billie Burke, who is now touring the principal cities of the Pacific coast in "Love Watches." She will make her New York reappearance in a new production about the first of next year

The Man of Fifty

By Forbes Lindsay

ILLUSTRATED BY C. E. CHAMBERS

THE best of the world's work in every field of useful activity has been accomplished by men whose ages were nearer to fifty than to thirty-five. The statement is axiomatic. Any doubt about it will be dissipated by ten minutes' flight of memory. And as the mind runs over many corroborative illustrations another fact will be forced upon it: that the older the actor, the surer the performance. The achievement of the man of fifty is the result of cold calculation and mature judgment. If luck enters into the matter it is an incident, not an essential factor. The young man, on the other hand, deliberately includes chance in his plans and freely takes risks. One in ten of him effects a brilliant coup. The other nine make a fizzle. But it is the startling success that holds our attention and moulds our opinion. The popular mind is influenced by instances rather than by averages. One man may create a reputation for the entire class to which he belongs. The meteoric rise of a George Perkins is widely accepted as evidence that a man is at his best in what is really the period of immaturity.

But this fallacy is not entirely fanciful. Our present system of business, being abnormal, produces abnormal effects. Our grandfathers scrawled "Slow and Sure" in their copy-books until the maxim was engraven upon their brains. The present generation finds no point in the story of the tortoise and the hare. The head of a large corporation declared to me that he would rather employ a man of speedy decisions, even though he made occasional mistakes, than one of the "slow as ditch-water but certain as death" kind. The commercial world of to-day is a sort of hothouse in which the young shoots are prematurely forced. Naturally enough, they deteriorate at an earlier age than they should. Also, in their eager development, they exert an upward pressure that pushes many a healthy plant out by the roots.

The dictum has gone forth that the man of fifty has passed the period of his greatest usefulness. This Oslerism is fast becoming a general belief. Gray hairs and wrinkles are a serious bar to employment. The man of fifty who loses his place in the procession has small chance of regaining it, and may deem himself fortunate if he contrives to squeeze into the rear ranks. And this applies to all classes in the pursuits that demand education and knowledge. Business men, college professors, engineers, and even clergymen find themselves under the ban at fifty. Strangely enough, the chances for employment of the man of fifty are greater in the callings where brawn is a more important qualification than brain.

The man of fifty may know that his faculties are keener than ever before; that his experience is riper, his judgment sounder, his constitution and habits more stable, and his power of steady, even application greater. But he can't persuade the world to share his belief. What, then, is he to do when he finds himself by some mischance thrown out of employment? Three courses seem to be open to him, omitting suicide from consideration. He may give up the struggle altogether and stay at home tending the babies, while his womenfolk earn a meagre living for the family. He may drop back and round out his life where he began it in an inferior position. Or—and this appears to be the most practical solution of his difficulty—he may resort to cosmetics, face-foods, hair-restorers, and the other agencies for obliterating the footprints of Time. By presenting a false front to the world he may impose his assumed uselessness upon it until concealment becomes no longer possible. But the subject is too pitifully serious for jocularity.

I believed the current statements about the difficulty of a man of fifty securing employment to be greatly exaggerated. After a fair test, I am fully satisfied of their truth. The week that I recently spent in the search for something to do was the most dismal of my life. I didn't want a job, of course, but at times that consoling knowledge escaped my memory. Despite the pretence on my part, there was plenty of realism in the situation. I was constantly in touch with others whose hunt was in grim earnest—all sorts and conditions of men reduced to dire need and fast falling victims of despair. I hope that I may never again have so depressing an experience.

The first step in my investigation was the insertion in a daily paper of the following advertisement:

> "American, just past 50; wife and children; wide experience of business; knowledge of foreign countries and trade conditions; college education; good habits; excellent health, mental and physical vigor; tested executive ability; unquestionable references, etc."

I met with a surprise at the outset. I had expected to draw a reply from every insurance company in the country and half the other concerns that similarly employ solicitors on commission. But evidently they are bitten with the prevailing prejudice against the man who has passed his meridian. One answer to my appeal invited me to call if I desired "a position as a solicitor." I did not desire such a position and so did not call.

In five instances I found myself one of a number of applicants, all of them as old as myself, by reason of the fact that like me they had availed themselves of a special section of the paper devoted to the wants of "men past fifty." I learned that the successful candidate in each of these cases agreed to work for a salary of less than twenty dollars a week, and in one instance it was no more than twelve dollars. Yet all the positions demanded considerable experience and ability. I had no reason to believe that these employers preferred men of fifty to younger ones, and I strongly suspected that they engaged them because their services were secured at a bargain. A later experience strengthened this suspicion.

Of three other responses to my overture one led me to the business place of a large exporting-house. At a specified day and hour, after an office-boy had read my letter and asked me a number of impertinent questions, I was shown into the room of the junior partner of the firm. He was a man of about thirty-five, steely-eyed and heavy-jawed, with aquiline nose and lips like scissors that clipped off the ends of his words—the sort that will never be looking for a job at fifty, because before that age he will be either a millionaire or a suicide. He made a point of not noticing my entrance for two or three minutes, and then he wheeled round in his chair as though he had expected to catch me in the act of picking his pockets. He nodded me into a seat with a smile as cold and reluctant as the drippings from an ice-chest.

In a few words he explained that his firm contemplated extending its operations to certain Oriental markets. They wanted some one to make investigations on the subject, conduct correspondence, study consular reports, and secure information from all available sources. Did I consider myself capable of undertaking the task?

I answered that I was especially qualified to do so, that I had spent many years in Asiatic countries, had studied their trade conditions, and could supply a great deal of useful information from my personal knowledge.

A few more questions seemed to decide the point that I was the very man to fill the position, and it was offered to me—at fifteen dollars a week! If my would-be employer had said "a million a month" I could not have been very much more astonished. Here was a concern demanding valuable services, on the efficiency of which large profits would depend, and offering as remuneration the salary of a second-rate stenographer. This was clearly a case of seeking to take advantage of the necessities of the man of fifty. And in my rounds I came across several men of unusual ability and special qualifications who had encountered similar strategy on the part of employers.

I had one other opportunity to accept a job. A manufacturer—probably attracted by the item of "mental and physical vigor" in my advertisement and assuming discretion to be an accompaniment of my age—proposed to hire me to join a certain labor organization, worm myself into the secrets of the leaders, and incidentally thrash one of them, with whom the gentleman had, I inferred, had a personal difference. This plan was cautiously unfolded in the course of three interviews and after I had been pledged to secrecy. It should be added that in this case the compensation offered seemed to be fairly adequate, though I had no means of knowing the size and character of the man who was to receive the slugging.

At the end of three days I had exhausted the possibilities latent in the nine replies to my advertisement. I had not gained a glimpse of a position such as would have maintained a "wife and children" in ordinary comfort and decency. Such services as I and a dozen others with whom I fell in are capable of rendering should reasonably command a remuneration of $150 a month. I believe that a man of thirty with similar qualifications would experience no great difficulty in securing that salary, but I doubt if one in a thousand applicants over fifty years of age would succeed in doing so. And yet there is a fair demand for the services of the older men when they can be had for a pittance.

I was following a beaten track when I resorted to a canvass of employers, at first discriminately, then haphazard, but always in a descending progress. This, I discovered, is the usual way of the unemployed of the better sort. And with their downward gravitation the situation becomes constantly more hopeless. The farther a man drifts from his proper sphere, the smaller his chances of making a lodgment. The man of fifty out of work should make his hardest fight to remain at his normal level. Each step backward is one that he will never regain, and the nearer he gets to the menial grades the more difficult will his quest become.

I found the companies employing the largest number of men to be, contrary to my expectation, the least promising. Several superintendents and managers were good enough to hear my plaint in person. Their explanations fully satisfied me that the corporations cannot, in justice to themselves or their force, admit outsiders of advanced age. As a general thing, efficiency in their responsible positions involves an extensive knowledge of the business and of the duties of the lower grades. Then their system is quite properly one of regular promotion. There is always a man waiting for each vacancy and entitled to it. To put an outsider into such a position would work a hardship on every man below him in the line of succession. The objection to giving him a situation in one of the lower berths is almost as great. Should the company do so, he would probably be on the pension list before he had commenced to do valuable work for it. But, as a matter of fact, the lower positions are fully pre-empted, and the demand for them is as great as that for the higher. The right of old employees to seek places for their sons and nephews is recognized and the tendency is encouraged. Then there is an internal retrogressive movement which increases the demand for subordinate positions. Men who have become aged in the company's service and unfit to continue their accustomed work are not thrown out, but put back into some lower place where duties are lighter and responsibilities less.

I found that in the thousands of places under a great street-car company there was not a niche into which I could squeeze. I was considered too old for a conductor and not plastic enough to be trained as a motorman. I ventured to suggest that if the company should employ men of mature age in the former capacity, instead of crude and often impertinent boys, the public would be the gainer. The manager to whom this proposition was broached said that they needed young men in the lowest grades. He declared that some of the most valuable employees of every railroad company rose from the car platform and cited the case of the president of a Philadelphia system who began with a ticket-punch.

Toward the close of my dreary quest, I found myself begging for a job wherever a business door stood open. I sought work as a shipping-clerk, storekeeper, tally-man, truck-driver—anything, in fact. But here the prospect was more confined than in the field of appropriate endeavor. Age did not seem to be so much of a detriment, but experience was invariably insisted upon, and there was occasional display of reasonable resentment that a man should come out of the field to which he belonged to compete in another. Withal I met with the greater sympathy and good-will among the sweaty, horny-handed class. In three instances men who earned every dollar by the hardest kind of labor voluntarily lent me small sums.

An office-boy asked me a number of impertinent questions

I derived a great deal of satisfaction from returning those loans with a liberal increment.

Among the job-hunters I met in my wanderings was a man nearing sixty who a year ago had $275,000 in clear cash. He lost it in Wall Street. For a spell he spent his time trying to raise a stake for a fresh start, meanwhile living on the fag-ends of his former fortune and the ebb of his old-time credit. About the beginning of the present year he was forced to look for work. Up to the present he has been unsuccessful. Every week sees his resources dwindle, his prospects shrink, and his courage wane. As he put it, apologizing for his only too apparent loss of heart and self-respect: "When a man falls overboard he doesn't go plumb to the bottom at once if there is any buoyancy in him at all. But he must sink in time, unless somebody throws him a rope. I guess they think that when an old chap like me makes a failure it's time for him to drop out of sight. And that would be all right if it wasn't for the children." His daughters, he told me, who had been accustomed to a home run on a fifteen-thousand-dollar-a-year scale, were earning a joint income of thirteen dollars a week.

I met with the greater sympathy and good-will among the sweaty, horny-handed class

This man is experienced in the business of the money market and could render good service in a broker's office, but, as he explained: "The big fellows don't need me and the little ones are afraid of me. They are a superstitious lot on the Street, and I've got the reputation of being unlucky. But, after all, I suppose my age has as much to do with it as anything. The young man is at a premium in Wall Street."

I didn't get the story in one but several conversations. Gradually he confided all the pitiful details to me of how he started on his search for a position, hopefully asking for a salary of five thousand dollars a year, how he descended step by step from that to begging for "anything," and how, with each successive failure, he felt the pluck and manliness oozing out of him. Then he began the weary round again, this time craving loans, also on a descending scale, from one hundred to ten dollars. "And every time that a man gave me anything," he said, "I knew that I had killed myself with him."

The man, who a short twelve months before would have struck me between the eyes for making such an offer, eagerly grasped the five-dollar bill that I slipped into his hand at parting.

Among the derelicts that I chanced upon were a graduate of Dublin University with a pocketful of enviable testimonials, an electrical engineer who had drawn a salary of twelve thousand dollars until he resigned his position to promote an invention, and a manufacturer who rashly extended the conservative business he inherited from his father and went to smash in the recent panic. Each of them had extraordinary ability in his particular line. Neither was much older than myself, but they had all been seeking employment for several months without success. I should note as an exception, perhaps, that the engineer had been engaged for a fortnight as a draughtsman at ten dollars a week. They were in agreement as to the belief that age was the chief, if not the only, obstacle to the attainment of their object. I don't believe that there was anything worse than ill luck to be charged against any of these men. At any rate, the man who keeps sober when the world wears its blackest frown is not a slave to the liquor habit.

It is all very sad and very senseless. But cheer up, man of fifty! The silly prejudice against you will pass in time. The pace will let up, and by and by we shall come back to the belief of our grandfathers that your age represents the prime of life. In the mean while, if you have a position stick to it like grim death.

Locating the Pole

HOW THE EXPLORER IS ENABLED ACCURATELY TO DETERMINE HIS GEOGRAPHICAL POSITION WHEN IN THE FAR NORTH

By Lieut.-Com. George Calvin Day, U.S.N.

Navigating Officer of the U. S. Battleship "Connecticut"

THE methods available to explorers and navigators for determining their geographical positions fall under two classes, dead-reckoning and observation.

Dead-reckoning consists in keeping an accurate account of the distance and direction travelled from some known point, and from this calculating the location of the position arrived at.

This is only approximate, even under the best of conditions, with a clear sea, long distances on the same course, well-determined speed, and a short lapse of time. Under such circumstances the error not infrequently amounts to several miles a day.

In the case of a "dash for the pole," such as those made by Cook and Peary, the conditions for keeping an accurate account of the position by dead-reckoning are about the worst that could be devised. The distance passed over must be estimated, and this is no easy matter in the case of an expedition fighting its way from two to thirty miles a day over the ice-pack. The courses must be taken from the compass, the horizontal directive force of which is small in those regions, and the variation of which—that is, the angle between the true north and the north as shown by the needle—is only very approximately known. The course must be constantly changed to avoid impassable obstacles; and the drift of the ice-pack, due to currents and gales, must be guessed at and allowed for. When the errors due to these various causes accumulate for a month or six weeks it will be readily seen that the position is nothing more or less than a guess.

The location of a point by observation admits of much greater accuracy. It is done by observing the angle between some heavenly body, usually the sun, and the horizon; noting at the same instant the time by a timepiece the error of which is more or less accurately known.

From this time and angle the position of the observer is found to be somewhere on the circumference of a circle which passes through a definite latitude and longitude, and the centre of which is directly "under the sun." That is, the centre of this circle, called a "circle of position," is that point on the surface of the earth at which the body observed is in the zenith. In practice the small part of this circle with which the observer is concerned is considered as a straight line, is called a "line of position," and is drawn through the latitude and longitude found in a direction at right angles to the bearing of the body observed. If the body observed bears south—is on the meridian—the line of position found is the latitude. If it bears east or west it is the longitude. If two or more bodies are observed, or if two observations are made on the same body after it has changed its bearing materially, two or more lines of position are found, and, since the observer is on both lines, he must be at the point where the two cross.

Thus, if either the latitude or longitude is known, the other can be found by a single observation, and if neither is known, both can be found by two observations, or "sights."

The accuracy of the longitude found depends directly on the accuracy with which the time of the standard meridian is known, that is, on the error of the chronometer. An error of one minute in time being equal to about fifteen miles at the equator and to something less than a quarter of a mile at a distance of fifty miles from the pole.

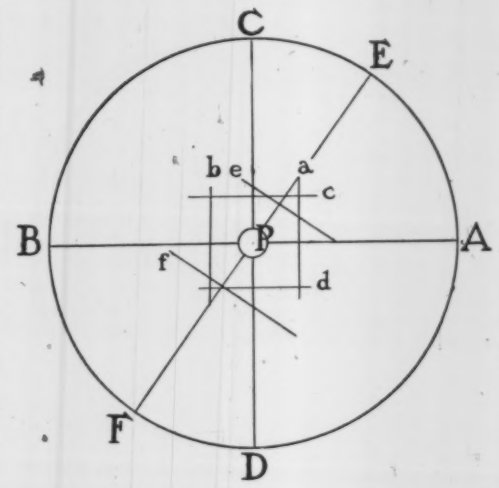


Figure I.—A reckoning from observations taken exactly at the pole

No chronometer is expected to keep exactly accurate time, but a good one will have a daily error, called the rate, of from nothing to two or three seconds; this rate changing slightly with the passage of time from the last cleaning, and changing materially with changes of temperature. The error is frequently determined and a careful record kept. A chronometer is a very delicate instrument, however, and is kept as far as possible free from jars and shocks, and shielded from changes of temperature. It will readily be seen that the rough usage to which it would necessarily be subject during a trip across the ice-pack, together with the severe and unavoidable changes of temperature, could hardly fail seriously to affect its error. Even if three were carried the time would still be uncertain at least to some minutes.

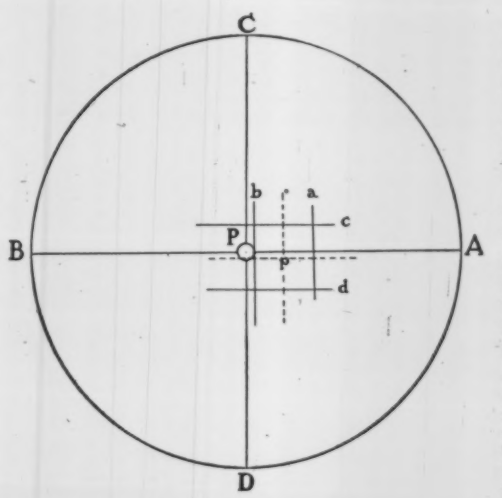


Figure II.—A reckoning when the observer is not at the pole

This would have little effect on the determination of the location of the pole, but would affect the record of the route up and back in longitude. It would affect the latitude indirectly, in that latitude is found from the altitude and declination of the sun, and the declination is tabulated for Greenwich noon for successive days. On April 15th the hourly change of declination is fifty-four seconds of arc, or not quite a mile, therefore an uncertainty of even ten minutes in time would mean less than a quarter of a mile of latitude.

The instruments usually employed are a sextant and some form of artificial horizon.

A good sextant, once carefully adjusted, will remain correct through a considerable time, if handled carefully; and even if knocked out of adjustment it is a matter of no particular difficulty in ordinary weather to correct it. Whether a sextant would stand the unavoidable rough treatment on a cross-the-ice trip is very doubtful, and once "out of true," it may be considered more than doubtful if an explorer, worked to the extreme limit of physical endurance, half starved, and with the temperature about the freezing-point of mercury, could muster the steadiness of eye and hand necessary to its proper readjustment.

The ice horizon is, of course, out of the possibilities for use in accurate observations, and with the very low temperature any liquid horizon would probably be frozen and useless. The most readily available substitute would perhaps be a mirror and spirit-level. This would be accurate, but has the drawback of requiring a steady foundation and painstaking and accurate adjustment. And into this, as with the sextant, enters the question of the physical capacity of the observer.

Another foe to accurate observation near the pole is found in the low altitude of the sun and the probability of abnormal refraction.

The declination of the sun on April 21st, when Peary was at the pole, was about twelve degrees N. That means an altitude of about twelve degrees above the horizon; and altitudes of less than fifteen degrees are regarded with suspicion even in lower latitudes, on account of uncertain refraction.

It is not unknown, even in inhabited latitudes and using altitudes of over forty-five degrees, for the refraction to make an error of as much as ten or fifteen miles. This is caused by the rays of light passing through layers of air of unequal density, and thereby being bent out of their original direction. This effect is greater the lower the altitude, and the conditions in the arctic are particularly unfavorable—a low altitude, air charged with water vapor, and with sections of varying temperature and degrees of dampness over

(Continued on page 32.)

The Capitalization of a Railroad

By Roswell Miller

THE amount of capital involved in the railways of this country is far greater than the average citizen understands it to be. In the year ending June 30, 1907, according to the report of the Interstate Commerce Commission, the total net amount of railway capital outstanding, including stocks and bonds of all classes, was the enormous amount of sixteen billion and eighty-two million dollars. This includes the amount of securities in the hands of the railways and the amount assigned to other properties, such as coal mines, timber properties, etc. Deducting these amounts gives a capitalization per mile of $58,298. This is in the hands of the public, and is the amount of actual capital to be supported by freight and passenger rates. It does not include the capital that has been sunk in the construction of railways which have gone through bankruptcy. That is lost and gone forever.

The Railway Commission of Minnesota represents that it would cost $54,201 per mile to reproduce the railways in Minnesota, and the Commission of the State of Washington has found that it would cost $73,000 per mile to reproduce the Great Northern; $67,900 per mile for the Northern Pacific; $75,000 per mile for the Oregon Railway and Navigation Company. While as a matter of fact the capitalization of the roads in Minnesota was only $44,206 per mile; of the roads in Washington only $48,906 per mile—much less than the cost to reproduce.

In 1907 the stock-paying dividends were 67.27 per cent. of the entire stock—$4,948,000,000—on which was paid 6.23 per cent. There was nothing paid on 32.73 per cent. of the entire stock—amounting to $2,408,000,000. The amount of stock upon which no dividends were paid was an improvement from 1897, ten years ago, when 70.10 per cent. paid no dividends. The rate of dividend paid on all the stock of all the railway companies was a little over 4 per cent.

The amount of bonds and other obligations of the roads was $8,395,000,000, on which they paid interest to the amount of $344,000,000, or about 4.3 per cent. There was nothing paid on $315,927,000 of funded debt, and only from 3 per cent. to 4 per cent. on $1,457,000,000 of funded debt.

If the capital on which no dividend and no interest were paid should be deducted the capitalization will be reduced about $10,000 per mile, or to say $48,000 per mile.

The capitalization of the railroads of the United Kingdom was $272,291 per mile; of Germany $107,272 per mile; of France $126,350 per mile; of Austria $112,000 per mile; of Italy $109,560 per mile; of Switzerland $105,220 per mile; of Belgium $169,140 per mile. The large capitalization of these roads, so much in excess of the roads of this country, is no doubt partly due to the great cost of construction. They are better built than the average roads in America. The very large capitalization of the roads in Great Britain is somewhat due to the English method of charging to capital all possible expenditures. But when all this is allowed, there still remains a capitalization considerably in excess of the capitalization of American roads.

Much has been said about the physical valuation of the railways of this country, the object being, of course, to limit the rates to enough to produce a fair return on the physical value of the property. While it is apparent such a valuation of the property will show that the property is not capitalized for more than its physical value, and that the rates paid for transportation by the public are not sufficient to pay a fair return on the physical value of the property, yet this can have nothing to do with rates. One road may have more expensive construction and more costly terminals than the other road, and one road may be physically valued at twice the other road, but there is no method by which the road having the greater value can charge any greater rates than the road having the less value without losing all the business. For that reason it seems to be a useless expense to value the roads at a cost of millions of dollars.

In view of the enormous amount of capital involved in the railroads and the small return on this capital, it would seem that the railroad situation must be handled with the utmost care, both by the managers and by the public. Want of this will not only bring the roads into trouble, but will produce disastrous effects on all industries, as has been forcibly illustrated by the depression of the past year.

The Moral Ballad of the Botts

By Charles B. De Camp

ILLUSTRATED BY DAN SAYRE GROESBECK

THE elder Mr. Bott was not
Aware that people thought him quite
Extraordinarily engaged
In sitting up for half the night

Performing on a tambourine,
And blowing on a silver flute,
And twanging of a mandoline,
And drumming with a rubber boot.

The elder Mr. Bott had got
A pint of applejack inside,
And thought he was the band and that
A military friend had died.

It wouldn't have been half so bad
If he had ever learned to play
The instruments with which he drove
From all the house the sleep away.

But these did not belong to him;
He found them in a closet stored
Against the time the owner could
Come back again and pay his board.

The roomer who had gone before
Had likewise left the whiskey and
When Mr. Bott had finished it,
He simply *knew* he was the band.

He little wot, did Mr. Bott,
That applejack will often make
A sedentary gentleman
Extreme' like an Irish wake.

For he had been a careful man
Who added figures in a bank,
And while, of nights, he smoked a pipe,
He never, hardly ever, drank.

And so he thumped and twanged and blew
The dead march to his friend and Sleep;
While on the stairs and down the hall
His fellow boarders cursed him deep.

The *younger* Mr. Bott was what
You might describe as "rapid." He
Contrived to spend three thousand on
A fifteen hundred salaree.

Wine, Women, Cards—the fatal Three!—
Engrossed the youth; and what he spent
In service on this trinity
Would build a model tenement.

It happened on the very night
The *elder* Mr. Bott forgot
The principles of fifty years,
The *younger* Mr. Bott was not

In funds. He tried a dozen friends
Who said they needed it much more
Than he; with nothing left to hock,
Last desp'rate chance—the governor.

And so he stood without the door
And shuddered at the fearful sound,
And cried, "Oh, father, let me in
Before they bring the wagon 'round."

The bedlam stilled. He entered in.
The father murmured vague alarm.
The younger Mr. Bott removed
The boot from off his father's arm,

And laid him down upon the bed,
And sat upon his chest and, when
Sweet sleep had got the elder Bott,
Went through his vest and found a ten.

And when into the hall again
He came and stood like one in prayer,
They cheered him through the cracks of doors,
They hailed him savior from the stair.

But when the younger Mr. Bott
Displayed the bottle to their view,
The boarders cried, "For shame, for shame!
And he was so respected, too!"

They praised him for a thoughtful son
And all were very glad he came;
They sang the vice of secret rum
And pitied him his father's shame.

The younger Mr. Bott could not
His tears restrain, his grief conceal;
And so he left the boarding-house,
And blew the ten against the wheel.

Railroad Contracting

By James O. Heyworth

RAILROAD contracting covers a very large field of many diversified branches of construction. The subject necessarily has to be divided into its various classes and then each one treated in detail according to the best practice in use at the present time. The annual conventions of the organizations created by the engineers of the different departments of construction have very rapidly standardized nearly every branch of construction and equipment. This system of standardization has been the result of practical study and field data, compiled by various committees appointed to run down each specific problem and submit their findings to the open discussion of the convention. Consequently, methods employed to-day can be accepted as the best practice in use.

Railroad engineers are and have been leaders in the pioneer work, both of the use of materials and methods of erection. For example, long before reinforced concrete had been accepted in its manifold uses for buildings, the railroad engineers had been putting steel and concrete together successfully for arches, slabs, floors, walls, etc.

It is seldom a contractor nowadays takes a piece of railroad construction the plans of which have not been worked out in detail by the engineers.

Omitting scientific detail of construction, I will treat "railroad contracting" from the standpoint of the relation between the railroad company and the contractor, and, if possible, show how they can work in harness to the mutual advantage of both, and why frequently this is not accomplished.

First. We must admit in each section of the country there are several contractors who are experienced and financially liable. There are always plenty such in the whole country.

Second. A railroad company requires the lowest bid, according to its specifications. Invitations can be sent to contractors whose experience and financial responsibility can be ascertained as easily as the "rating" of any concern doing business.

Third. Bids should be opened and read at a specified time and the work awarded to the lowest bidder.

It is just as important to ascertain what contractors should be on the "invitation list" as it is to draw up plans and specifications. When this fact is established, take the advantage of competition. Methods of equipment, labor, and source of supply of materials have more to do with the cost of work than organization or "in the rut" experience.

The practice of railroad companies doing their own work is good so far as it covers maintenance. In new construction or replacements it is contrary to all the laws of Nature. Where the dollar doesn't mean "sink or swim" economy ends. Nothing will kill an efficient organization quicker than to put it on a "cost plus percentage" job. The uncertain goal of success is the only magnet which will draw out man's possibilities.

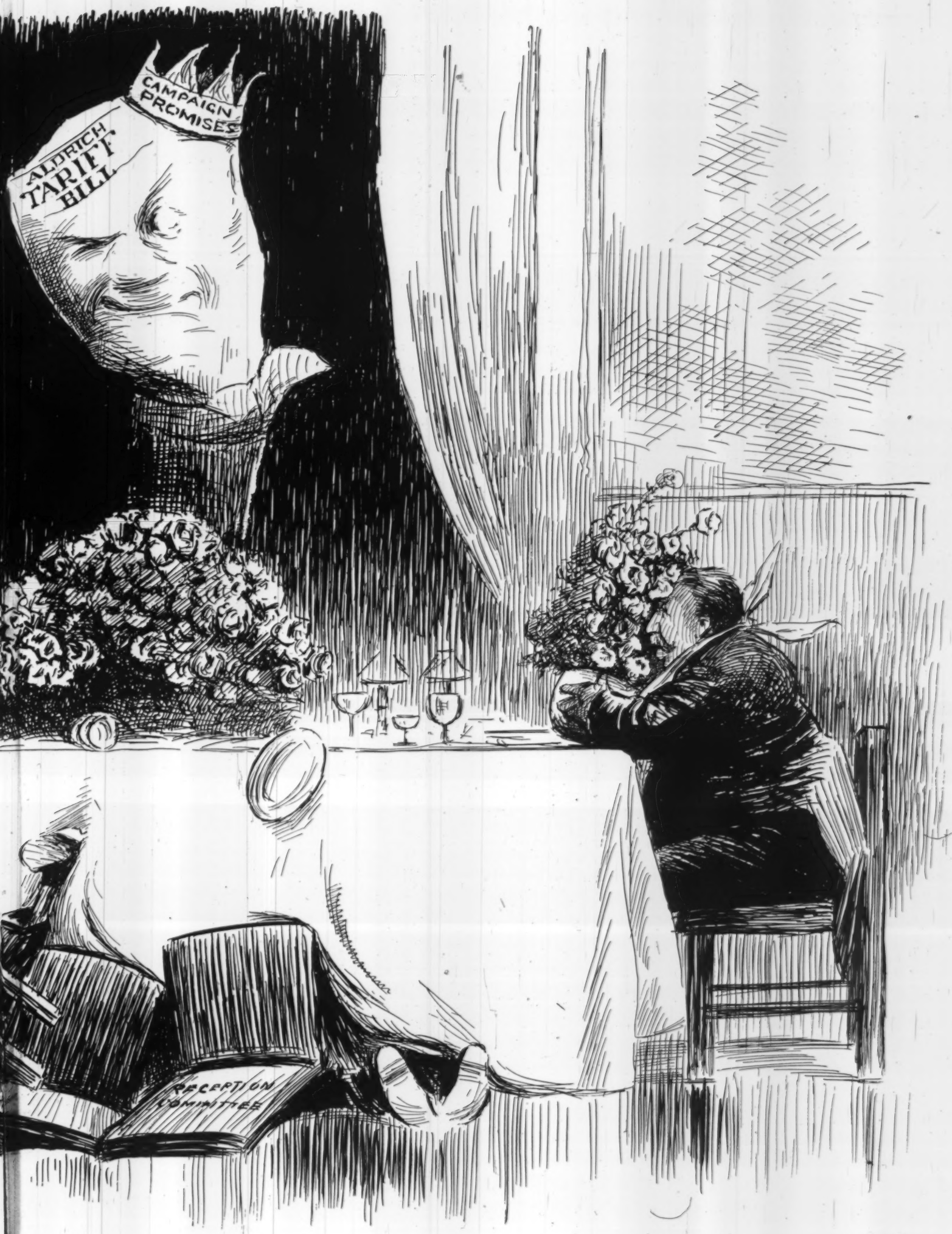
Plant and equipment are the load-stones of the railroad contractor. They get bigger and bigger in their statements, and smaller and smaller in their real value. Why should the railroad company acquire this undesirable asset in doing their own work, when it is possible to put it on the shoulders of another party? In doing their own work railroad companies permit the "personal equation of ambition" to enter into a question where sentiment has no place.

Bookkeeping is the life-saver of railroad companies doing their own work. The railroad manager or engineer has too many problems to face and solve, to waste his time doing the work when there are so many responsible contractors hungry for it.

THE INTER UP

ELEPHANTITIS MACBETH: "DOWN, BUNKO, OWN;

DRAWN BY E. W.



UPTED FEAST

OWN; THY CROWN DOTH SEAR MY EYEBALLS"

Y E. W. KEMBLE

THE FLY BURGLAR: "SAY, BILL, I AM GOING TO QUIT THIS JOB. NO MATTER WHICH WAY I LOOK, THIS FELLOW HAS ALWAYS GOT HIS EYES ON ME."

NEW CUSTOMS REGULATIONS

THE attention of the travelling public is hereby called to certain new regulations of the custom-house to go into operation about December 1st:

I. Owing to recent large smuggling operations in diamonds, all returning travellers will have their teeth extracted and thoroughly searched before being permitted to leave the pier.

II. The unfortunate proneness of women to smuggle requires that after said date all feminine travellers returning to the United States shall be kept in the Federal prison at Castle William for thirty days subsequent to the arrival of the steamship conveying them hither.

III. On and after January 1st European travelling by Americans will be regarded by the authorities as *prima facie* evidence of an attempt to defraud the United States government and will be punished by a fine of $500 for the first offence, $1,000 for the second, and imprisonment for six months at hard labor for the third.

IV. All returning travellers must be ready to provide the customs inspectors with convincing proof that at no time in the past have they served a term in any American penitentiary, been indicted for mayhem, arson, or petit larceny, or committed highway robbery at any point south of Labrador or north of the Panama Canal. Failing to provide such proofs, said travellers will be incarcerated in the Federal prison until released by special act of Congress.

V. Persons returning from Carlsbad, Wiesbaden, and other health resorts of Europe must submit to an examination of their livers by the medical authorities of the United States, and all persons found returning with a new liver or any other of their organs renewed by foreign influence will be required to pay a fine of $5,000 on penalty of having the same removed.

VI. All persons who have failed to file their photographs in the Loeb Gallery at the New York Custom-House before leaving this country will not be allowed to land until they have been mugged and their measurements taken by the Bertillon system for future reference.

VII. Children born of American parents abroad while on tour cannot be brought into this country under any circumstances. Inspectors are cautioned to enforce this rule rigidly and impartially under penalty of dismissal.

VIII. Pursuant to the will of the collector of the port, any male traveller who resents insulting questions to the women of his party by threats or aggressive physical action against a United States customs official will be regarded as a seditious and treasonable person, and will be held by the authorities pending the passage by the Congress of the United States of legislation affecting this question, said legislation under no circumstances to be brought before the current Congress.

IX. On and after said date all dogs, cats, rhinoceri, and other personal pets belonging to returning travellers must be sent to the Pasteur Institute and turned inside out, rummaged, ransacked, and otherwise searched in the presence of accredited officers of the custom-house as an assurance that they contain no diamonds, rubies, pearls, Irish laces, gloves, bolts with or without threads, axles or parts thereof, timber hewn, sided, or square otherwise than by sawing, plushes and woven fabrics, except crinoline cloth, and manufactures thereof, or other undeclared dutiable articles.

X. While there is no duty placed by law on golf holes, any persons trying to bring in sausages under the regulations providing for the free importation of links will be immediately placed under arrest and kept in close confinement until they have eaten said sausages raw.

XI. Any person detected in the act of smiling pleasantly upon an inspector during the examination of luggage will be regarded as having criminal designs upon said inspector, and will be held pending an examination by the collector into the reasons for said smile, and will not be released until his report thereon has been published for three consecutive issues of a daily paper having a circulation exceeding one million.

XII. Any question of veracity arising between a returning traveller and any official, high or low, in the employ of the United States custom-house is hereby and from this date decided in favor of the latter.

By order William J. Dope, Chief Inquisitor, U.S.A.

THE VACATION OF GRIGGS

GRIGGS had been in the office all summer. He had seen his fellows leave for their lawful two weeks, and had heard, with some exactness, the cheerful words used to greet them when they came back. When, therefore, the day came to greet Griggs, this is what was written and hung by him as a sign upon his desk:

Yes, I've been away on my vacation.
Yes, I had a good time.
Yes, the weather was fine.
Yes, I'm glad to get back.
Yes, the first day is always the hardest.

Our sympathy is with Griggs.

"GEE! I WISHT I WAS A MILLIONAIRE!"

WHAT TO DO

(Extracts from First Aid to Everybody on all Occasions, by Carlyle Smith)

WHEN a man rushes into your office hurriedly and says,

"By Jingo, Dawson, I hate to speak of it, but I need five hundred dollars like the very old dickens to-day!"

ANSWER: "What a singular coincidence, Binks; I do too!"

When the lovely young maiden at the seaside to whom you have been paying court all summer shakes her head violently and says,

"No, Mr. Blithers, I cannot imagine any circumstances under which I could be induced to marry you."

ANSWER: "Thanks, Miss Jones—this is a great relief. I was afraid you had misconstrued my attentions and, of course, desired to live up to my implied obligations."

When you run face to face with your tailor upon the street and he turns a cold, beady eye upon you and says,

"Excuse me, Mr. Bump, but what have you to say about my little bill?"

ANSWER: "I don't think I have met your little Bill, Mr. Snipperton. Indeed, I didn't know you had any children at all."

While he is recovering from this, jump into a taxi and proceed to break the speed laws.

When your wife comes to you with a frown on her face and a rather sniffy manner generally and says:

"I have been told that you were seen with Henry Jabbs in the front row of the Alhambra Theatre the other night. The idea of your going to such a disgusting play!"

ANSWER: "You are perfectly right, Tabithy. Henry and I went to see if it was a fit play to take you and Mrs. Jabbs to see, and I am sorry to say it wasn't."

"WHITE WINGS" OF THE FUTURE

THE HARD LUCK OF PATSY FINNEGAN

HE was working with trowel and mortar when I first met him and, in spite of his age, seemed to be about as active as any of his far younger associates. Indeed, as I watched him at his labors, it appeared to me that he worked better than they, belonging, perhaps, to a generation of labor that, instead of doing as little as it could for as much as it could get, believed in the principle of giving every man his due, even a contractor. After he had set several dozen bricks in the wall, he turned from his work and gazed off at the sun for a moment and then fanned himself with his trowel.

"Kind of hot work out here in the sun," I ventured.

"Yis," he answered, cheerfully; "but Oi ain't complainin'. If ye'd iver troied shovellin' shnow in a blizzard yez wouldn't foind much to kick about in a noice warrum job loike this."

"Been at it a good many years, I suppose?" said I.

"Foorty-sivin years," he answered.

"Good long time that," said I. "Almost time to retire, I should say—considering your age."

"Oi don't moind workin'," he answered. "It kapes me from t'inkin' about me hard luck."

"Hard luck?" said I. "Have you really had hard luck?"

"Yis," said he. "Oi don't know of anny wan who's had much worse."

"That's too bad," said I.

"Ah, well," he smiled, "we've got to take it as it comes."

"Lose your money on Wall Street?" I queried.

"Not me," he answered; "Oi niver had anny to lose. My hard luck begun the day Oi was born."

"Well, I'm sorry to hear that," I said.

"Yis," he went on; "ye see, sorr, Oi'm a twin brother of Misther Andrew Carnegie, sorr. We was born the same day and the same hour, and but for wan little t'ing Oi moight have been as rich as him."

"You Carnegie's twin brother?" I demanded.

"Yis, sorr, only there was wan little t'ing that shtood between me and riches."

"What was that?" I asked.

"We didn't have the same parints," he volunteered.

Whereupon he resumed his bricklaying, and I went on speculating sadly upon the strange chances in this lottery called life.

OVERHEARD AT THE POLE

(From our Special Correspondent on Skates, who was present at the Discovery)

PEARY'S GREETING

COMMANDER PEARY. "Colonel Pole, I believe?"

THE POLE. "The same, sir. I am glad to see you, Commander Peary. I recognized you the minute you slid across the ice by the cut of your ear-tabs, photographs of which have been floating in here at intervals for the past ten or fifteen years."

COMMANDER PEARY. "The pleasure is mine, Colonel Pole. I've been looking for you for some time."

THE POLE. "I am sorry I cannot ask you to stay to dinner, Commander Peary. The Cook only stayed a few minutes—"

COMMANDER PEARY. "Don't mention it, Colonel. I've lived in the suburbs myself and this encounter quite suffices to stay my appetite. I always was fond of cold meet." (Thus was the ice broken.)

THE POLE EXPRESSES SATISFACTION

THE POLE. "Do you know, Commander Peary, that it is a matter of great satisfaction and relief to me that it is a toss-up between you and Dr. Cook who discovered me? I have been very anxious about it of late."

COMMANDER PEARY. "Indeed, Colonel? What was it worried you?"

THE POLE. "Why, sir, I was afraid Roosevelt might bag me, and I'll be hanged if I cared to spend my declining years stuffed with antiseptic sawdust in a glass case in the Smithsonian Institution."

POLAR READING

COMMANDER PEARY. "Tell me, Colonel, what do you do with yourself nights? You have a Great White Way here, but there doesn't seem to be much doing on it."

THE POLE. "Oh, I spend most of my time reading. My library consists of only one volume, but I get a great deal of pleasure out of it."

COMMANDER PEARY. "Really? It must be a good book. Perhaps you won't mind telling me what it is?"

THE POLE. "Certainly, my dear Commander; it is a charming little story for readers of all ages entitled *Aurora Borealis in Wonderland*."

LADIES AND GENTLEMEN, I HAVE DRAWN HERE THE PICTURE OF A BOWL OF GRUEL. NOW WITH A FEW ADDITIONAL LINES WE HAVE—

A PRIZE-FIGHTER WHO HAS GIVEN MANY A MAN A GRUELLING

CIRCUMSTANTIAL EVIDENCE

"DE VILLERS has quit scorching."

"Machine all in?"

"Nope; he's dead."

"Oh, that doesn't prove anything."

THE EXCEPTION

THEIR teacher had been telling the pupils of the Great Salt Lake in Utah, "the water of which," she explained, "is so extremely salty that no fish can live in it."

This statement proving too much for the credulity of Willie Parker, he rose with this question:

"Beg pardon, Miss Smith, but can't mackerel live in it?"

THE FLIGHT OF TIME

"It's three months since I saw you last,"
The one who met her plainly states.
Says she: "Can that be possible?
It's awful how time aviates."

F. P. PITZER.

COSTLY COUNSEL

"I CAN understand all you have to say on the subject in an hour's time," said the judge.

"Beg pardon, your Honor," persisted the young lawyer, "but I shall consume at least five hours in my argument."

"Very well; have it your own way," said the judge, with resignation. "But it will take the prisoner about five years to tell why he employed you."

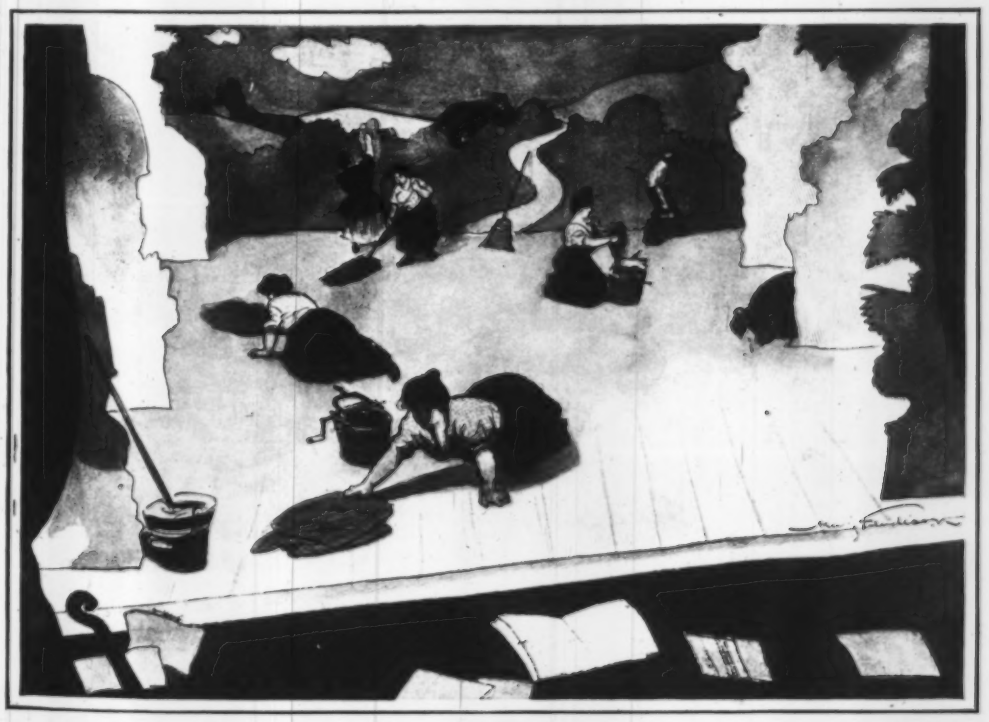
"LOOK HERE, MARIA, IF YOU DON'T HURRY AND GET DRESSED, THE FIRST THING YOU KNOW YOUR GOWN WILL BE OUT OF STYLE"

MOTHER GOOSE EXPLAINED

THERE was a man in our town
Who was so wondrous wise
He jumped into a bramble-bush
And scratched out both his eyes.
"Because," said he, "when they are gone
I shall not see again
The list of things so sad and wan
That give me so much pain—viz.:
The gowns the modern ladies wear
That make them look so thin and spare,
Likewise the way they fix their hair
With puffs in rows designed to please,
But much resembling sausages;
The modern show upon the stage
O'er which the modern heathen rage,
So truly grievous to the sage.
These things I shall not have to see
Now that mine eyes have gone from me:
The modern kid upon the way,
Old, cold, and terribly blasé,
Whose play is work, whose work is play—
A thing of gold, no doubt, within,
But on the outside more like tin;
The countryside once fair and green,
With farms and gardens in between,
Whereon, alas! to-day are seen
Great fences reared and letters huge!
Use Uncle Peter's Liquid Rouge;
My fellow beings, tired chaps,
Suspended from the Subway straps
Or dangling in the sitters' laps;
And weary women on their feet,
With young folks filling every seat;
The motors whizzing o'er the way
On which the little children play
Regardless of the price they pay.
I get enough of motor woes
By merely using of my nose!"

"'Twas to escape from sights like these
I jumped into those bramble trees
And scratched my eyes out. I would fain,
When they are cured, jump in again
And scratch 'em back, that I may see
The pleasant sights that used to be!"

HORACE DODD GASTIT.



PURIFYING THE STAGE

Bêche-de-Mer

By Leo Crane

ILLUSTRATIONS BY ARTHUR S. COVEY

"Master, I marvel how the fishes live in the sea."
"Why, as men do a-land; the great ones eat up the little ones."—PERICLES.

SOME of us live in cities, and some of us go down to the sea in ships. Of these last had been Johannesen. But when I first met him his sailing-days were over, and he kept a ship-chandler's shop—a gloomy, much-cluttered place smelling of rust and oil—down on the water-front. At twilight one could see him stumping outside, his wooden leg solidly prodding the cobble-stone pavement, putting up his shutters. The water-front is a lonely place at night, and Johannesen kept his shop like a fort; it has been a warehouse since Bêche-de-Mer came . . . but I will give you Johannesen's story first. Then he would light his two ship's lamps, the globes of these greasily yellowed, and with a crony or two and a glass of grog in his room back of the shop, would pass the time amid yarns and tobacco smoke.

I met with Johannesen in this way: MacDougal wrote Shipping for the "Press." He could get a captain's story when others failed, and the men of the sea knew him and welcomed him every one with that heartiness born of loneliness and fog. Therefore, on many a night Mac stumbled down their ladders and into his dingy, with too much of his welcome inside him; and on such a one I located him at Johannesen's.

"A frien' o' mine," mumbled Mac, seeing that he was discovered and the obligation of introducing me. He apologized for my condition—"Don' min' what 'e does, Joo—hamsome; 'e's a' right, an' . . . an' I'm sorry for 'im. . . ."

Thus recommended, I made a friendship with the old man. He had been apprentice, and mate, and master at last; he had sailed the seven seas and loved them all; in his talk was mention of a thousand ports, the friends he knew no more. Once he grew reminiscent to a degree that was unusual, and concluded by saying:

"Aye! that was the trip 'fore I was married, too—which helps me remember it so clear."

Now I had listened to him on many nights, but the things he had told were rough romance, concerning gales and fogs and the wrecks of ships and men; whereas I suspected a bit of sentiment in this.

"There's the yarn for me," I suggested.

He turned with a sad smile, a wistful expression for such a man.

"Aye, lad! that *is* a story. . . . but one I never tell."

By prodding the memory of some woman dead I had earned the snub, and so, rebuked, I left him.

Perhaps a month passed without my seeing more of Johannesen; and then one night it came on wet and wintery, with a driving rain beating around the old warehouses, and the wind sweeping in from the river, and the towboats moaning as they felt their ways through the mists. A tramp with ore had reported in at "the Hollow," the captain thereof an old friend of Mac's, and they both Scotch; when he had not re-appeared at ten o'clock a short cut took me to Shakespeare Street, from the foot of which, where the ferries come in, I hoped to chance on a small boat. Shakespeare Street is one of those lanes "where sailormen abide," and Fultah Fisher's boarding-house is many times repeated, and its tragedy, too, perhaps, were the truth but known. The street was as dark as a ship's hold, and when crossing it I was hustled by a man who came swiftly out of the dark. He mumbled an apology with an oath in the same breath, and as he tried to recover himself I heard a wooden tap on the pavement; lo! it was Johannesen.

"Hello!" I said. "What's the rush?"

He gave me a frightened stare and stammered something thickly.

"What is it?" I asked. "Have you seen a ghost?"

"God, lad!" he said, breathlessly, "God! . . ." and these were the only words he seemed capable of uttering at once. I caught his arm and demanded to know what had happened.

"Let me go!" he protested, glancing behind him, "let me go—and—when you're down street, cast an eye about; if yeh see anything strange-like, let me know soon." With that he broke away and stumped off hurriedly.

I was carrying a heavy stick—my custom in such quarters, where one may meet a policeman, and then one may not; I shifted it to balance nicely, and with a whistle for courage went on. At the next corner I came suddenly upon a fellow who lounged against a lamp-post, as if content despite the vile weather. Water gleamed from his oil-skins—he might have been overboard recently, so wet he was. As I passed the yellow light fell on his face, and I started, involuntarily, as if I had touched something clammy and had got a chill. His skin was of a bluish-white color, this pallor even to the lips, and his eyes had a vacant stare, which was only seeming, for the cold penetrating gaze from those filmy eyes was deadly. I hurried on, half shivering.

Not finding Mac, eventually I returned to Johannesen's. He was a long time answering my knock, and first surveyed me from a hole in a shutter panel. When he did open the door I noticed a nasty-looking blue steel gun in his hand, and I did not relish going ahead through the dark of the old shop. How did I know but that he had been a buccaneer?

"Come on back," he invited, leading the way and putting his weapon on the table. He looked at me narrowly, as if he debated the wisdom of yielding a confidence, and then asked:

"Down there—did yeh see anything?"

"On Shakespeare Street? Why, yes; a fellow who looked as if some one had pitched him overboard, and he had the queerest fishy eyes."

Johannesen sighed in a troubled way. "I know . . ." shaking his head. "I thought I had sighted him—that's him. . . ." He tapped me with one finger impressively. "That's Bêche-de-Mer."

Then he commanded me as if on his own deck, master again, and a hundred leagues out.

"There's paper an' a pen. I had got it out for myself, but I cramp at writin'. Yeh asked me once about the—my courtin' and that voyage. Well—write down, write down—there's a lot in it concernin' this Bêche-de-Mer."

And follows Johannesen's story:

"You have not been in the Pacific, or yeh would understand bêche-de-mer. That's where I got to know them an' . . . an' him. I was mate then, the bark *Auckland*, and the captain's daughter along. I had begun to see what a fine bit of a girl she was long before we picked up the distress signal. Now that came about this way—we had a spell o' good weather, when sudden the glass begins to fall. We had time to prepare for it, an' we made the craft as tight as a drum. One gale is like another, anyway, unless you're caught napping, an' we weren't, so we rode through safe enough. Anxious times, though—an' we in waters so chocked with the backbones of reefs that a man with a sweetheart aboard couldn't rest easy. But we clawed through all right, a day an' a night of it, and when the dawn comes, a yellow grinnin' dawn, we saw that the worst was over. We made some guesses as to where we had arrived at, an' the captain said he thanked God for decent daylight, for away off to starboard was a thin reef, low an' wicked, a fang of coral, lookin' like the bones of somethin' that had died and bleached out. An' that was where we sighted the signal.

"'Some poor devils, Mr. Johannesen,' says the captain, 'worse than ourselves,' he says, 'all 'cause they didn't have the light an' a decent sea.'

"It was running high yet, but we stood by an' dropped a boat. The captain calls for men to man it—it was no pleasant job, an' we had no time to waste, for 'tis a fancy of those gales to whip back-track on yeh.

"'I take it, Mr. Johannesen,' says the captain, 'that reef is one o' the Twins.' And he showed me a nasty place he had marked on the chart. Likely it was one of 'the Twins,' I thought, an' mean enough for anything.

"Well, a comber swept our boat across a spur of the reef, spite all the men could do, an' we dropped a second one to save what we could from the first. Crushed like an eggshell was that first boat, and two men gone, which event started our trouble.

"I went off with the second boat, an' we made a landing. There was one lone man to meet us, the strangest-lookin' figure he was—I can't describe what a creep that fellow gave me—he was 'most naked, looked like a bunch of mouldy seaweed that had dried, an' the starved bones of him, an' the stare in his eyes. . .

"We had lost two men for him, an' without more ado we pulled back to the ship. Making sail, we cleared for the open, an' as the captain had said, to the nor'-nor'east we picked up the second reef, as wicked-lookin' as the first, but with more bone above the water line.

"Now about that man we had picked up—even after we had togged him out he was a creepy object. Weak!—he was weak as . . . as bêche-de-mer. Trepang they're called in the places where folks eat 'em—God! I couldn't eat any. An' that fellow couldn't speak a word—I guess he was dazed, mebbe, anyway . . . he had lost his tongue. After he'd been fed a bit, he brightened up some, an' one of the men, old Fritz, tackled him in German. He caught a little of that, an' we took it that he was German. But he looked no nationality at all, an' the men were leery of him. He kept that queer glazed look in his eyes, too, which no amount of comfort seemed to disturb, an' so none of them was anxious to make friends. I didn't blame the men—he felt cold to the touch, clammy. . . . Ugh!—mebbe you've touched a fish. . . ."

Johannesen loaded his pipe. He said he was shaky and wanted something to bite on.

"With sunlight an' fair weather it would have been different; but we did get the lash end of that gale. Close-reefed we tried to run before it, until the foremast went over, an' the old bark got crazy. Matt Larzen was at the wheel for a long trick, an' he swore she was bewitched, 'cause she wouldn't

answer half the time, an' Matt had known her for years. Well, spite of all we could do, she went the way of many a good ship, did the *Auckland;* the wrath o' the sea was up, an' she wrecked—but where, do yeh s'pose? On the rack of coral bones off where we'd got *that man* the day before. An' when she struck, the way she went to pieces was strange to see—like a boat determined to commit suicide.

"I knew then how much the captain's girl meant to me. She was a plucky one, lad—I went overboard with her that night, clingin' to a piece of raft we had lashed, with my one arm caught round her and the other twisted in the rope. It near pulled both off me, but I held to it, an' when her white face would come close up, wet and miserable-lookin', I forgot everything else and damned the South Seas with all the spleen there was in me. An' by God! we went through it, we two, though the arms I had were bloody, an' when we'd got to the reef, her eyes closed an' her teeth biting into her lip, I thought she was dead—an' somehow, since we had stood on the deck together, waitin' for the last of it, we separated from the rest, I knew—though never a word did we speak, only—she had gripped me by the arm, tight, an' when we were lifted away from the deck she had called out, so I knew that the others were forgot, an' that she wanted me."

Johannesen smoked hard for a minute, and I lost his face in the drift of it; but there was a husky note in his voice—and he kept on smoking.

"Morning found us huddled together, ten of us beside the captain, like a bunch of drenched sheep. But she smiled when the sun came out, an' that put life back into me, lad. There was something to live for, and to fight for, so I went to work knowin' the world would have nothing worth goin' back to if she wasn't along. Women are the only rainbows we ever find, I guess.

"Work! There was the wreck, a tidy distance out, an' fast going to pieces, so we had to sit by idle and watch it breaking up. Some things of use came ashore, an' by sheer rush we got them. Water we baled out of the reef's hollows, an' after the bark was gone we counted a three days' supply of food—or say five of starvin' rations. When that was exhausted we had nothin'.

"Then we sought advice from the . . . from Bêche-de-Mer. Oh yes! he saved himself—while most of us had cuts and bruises to show for our swim, an' we were a worn-out lot, he hadn't seemed to mind the experience a whit. He wasn't changed, nor downcast—the same forlorn object he had been. For all we knew, he could have been a squid that picked the reef to sun on. But he could give advice. *He had lived on this reef,* months, perhaps, an' we found him with nothing. So we wanted to know—*how he had lived!*

"Old Fritz tried to make him understand, and finally he managed it. Mebbe his dulness was put on, an' mebbe not; a fish has got no great store of brains, an' he was as much that as man can be without having scales. During all this time no one had even a sympathy for him. He was the sort yeh wanted to let alone. We didn't have to shun him, for he kept apart. The reef was of considerable extent and he held to his place on the far side of it, where he would sit in the sun for hours without stirring, gazing out, silent . . . enough to give yeh the creeps to look at him.

"But he had *lived.* And to live was the question before us. We must learn from him the process of existin' on practically nothing at all. When he finally came to understand the question, he went off an' in a short time he comes back with the things we afterward named him for—bêche-de-mer.

"Yeh know what bêche-de-mer is? Trepang is the common name—sea-slugs—why, you've heard of 'em, sold in Manila and Eastern ports. I've seen the stuff when dried, lookin' like charred sausages, an' crackly. There is a trade in them; they are gutted with a knife, boiled by the fishers, an' dried for sale. The Chinese like 'em, an' the black sort, 'chao sah oo,' they call 'em, fetch as much as five hundred dollars a ton. But since the wreck, the Chinks can have 'em all; I know that I've had my fill of bêche-de-mer, whether eighteen inches long and black, or man-big, like the one we tried to save for civilization.

"Well, lad, that was what he ate; he had lived on 'em raw—the sort of food to make a man dull and chilly. So many times had he been in the sea after them, his hands looked bloodless an' fin-like; and so he was fishy-eyed, vacant, without a human emotion, an' no use for a tongue or words. That was what we thought, anyway. An' I s'pose if he hadn't been somewhat bloodless to begin with, he couldn't have lasted there alone, as we found it, 'cause it was a hellish place. Day an' night the sea hissed in, churning over an' tearing at the coral, as if it was greedy to make way with it, an' the sun broiled down on the white crumbly back of the reef, and the dark made bones of it again. Fine weather, an' yeh could see the other Twin for company, just another bleachin' skeleton—then the blue-gray sea clear off to the skyline, with never a sail, an' the white-topped waves always lickin' in—enough to drive a real man daft, lad!

"So we lived on bêche-de-mer for some time—I don't know how long. He'd get them in the reef-end shallows at low tide, an' sometimes he'd dive into deep water for the bigger ones. There was black ones, an' red sort too, soft pasty things, and some that are called 'the prickly fish,' green color. Now we had a bucket from the wreck, a copper-bottomed tin thing, an' we would boil bêche-de-mer in it. We didn't ask questions 'bout the green ones, an' then, sudden we were all sick, dog-sick, every man of us, and Larzen died that night. Yes, Larzen died—from what? Why, it must have come from the green bêche-de-mer; but the men began to whisper, saying that he died from 'the Bêche-de-Mer,' meanin' *him.*

"We were now ten people on the reef—not countin' him, yeh know. There was the captain an' Mary; Wirt, the second mate; old Fritz, Steenerson, Dodd, McCauley Freebus, Martin, an' myself. You can guess what a scare Larzen's going off gave us all; an' while the men couldn't say, they believed *he* had something to do with it. Old Fritz came to me with the tale; he wanted to know if we weren't takin' big chances.

"'Better stand a watch at nights, sir,' he said. 'Ever notice how he looks at us, sir? He's got the evil eye!'

"I had paid little attention to the castaway, but I found that he did take a stealthy sort of interest in our affairs, though all the time he kept off to himself. When the captain heard of the men's ideas, he only laughed, for he feared nothing. He said the fellow was a poor creature, unfortunate like ourselves, an' that loneliness had made him queer; and he added to me, speaking grim, 'we're all like to resemble him, Mr. Johannesen, unless some ship is sighted!'

"But you can imagine what I felt when Mary came to me with the same such idea, too. Women, lad, feel these things keener than do we rough men. She said this fellow was like our shadow, that she had got awake nights to see him spying on the camp. I tried to show that she was only timid, but she makes answer that one man has died, an' that if we went, one by one, what would become of her. Then she broke down, like women do, an' she puts her arms about me, begging that I mustn't leave her alone.

"God! when I think of that time an' the suspicions I had, I get the creeps, such creeps as you had tonight, only a hundred times worse; for think of bein' off on a reef with a man like that, a vacant-eyed bloodless sort, misfortune followin' in his footsteps . . . think of it!

"But the captain would have none of our old-wives tales, an' no reg'lar watch was set. To quiet her nerves, though, old Fritz an' I determined to have a watch, notwithstandin', he takin' the first part o' the night, and I the rest of it. It was not always as easy to keep awake as it is to tell about it—the days exhausted a fellow out of sheer monotony, an' once I came to doze off when I should have been wakeful. . . . Well, yeh know that feeling of how things ain't goin' just right when yeh suddenly wake up? It was just that way with me. I came to myself with a jump, an' I knew that *he* was around somewhere. Then I see somethin' making off, stealthy as a shadow, an' it must have been him, What could he have been up to? What, indeed!

"The next mornin' I *knew!* Dodd was cook, an' he complains that he must be going dotty, else why did he think he counted nine bêche-de-mer on the night before, when there was fifteen now? So—I had surprised the fellow changin' the stock of food, an' he had made off without evening up right. What could we expect, but another man to go—mebbe two or three—if we ate the stuff. This was proof, an' we laid it before the captain.

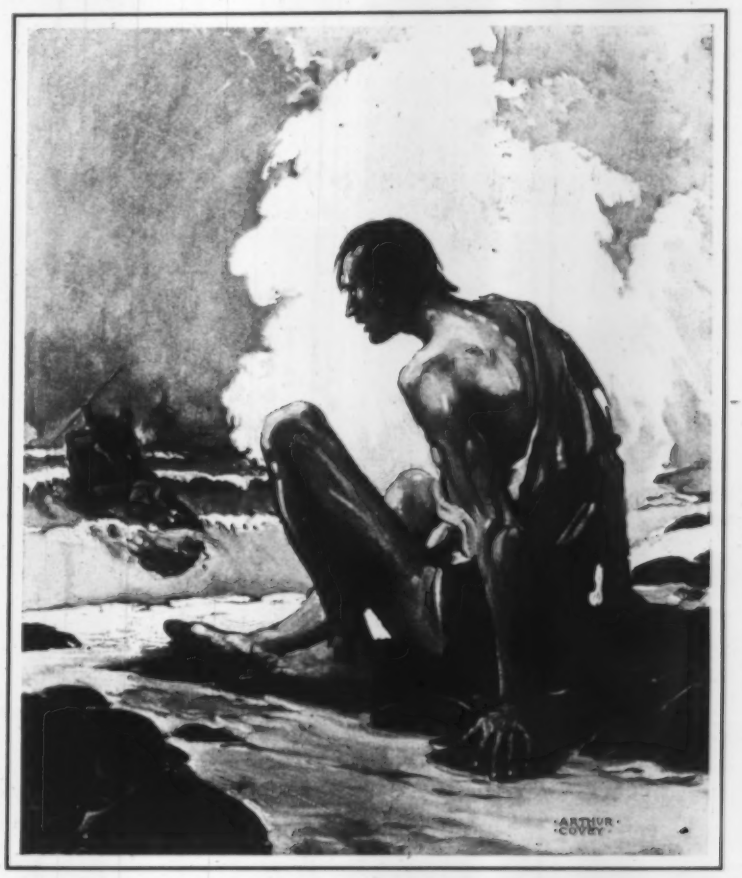
"'All right, Dodd,' he says, cheerful, 'go ahead and get breakfast.'

"'But sir,' Dodd argues, horrified, 'you ain't thinking of eatin'?'

"'No,' said the captain, 'but I intend that he shall eat!'

"Then that fellow Dodd went to work like a man who expects to see some wicked fun. We sent a hail for Bêche-de-Mer to come in to breakfast. It wasn't often that he got such an invitation, an' he came in slow. He said he'd had something to eat, already.

"'Go ahead, man,' ordered the captain; 'there's a feed.'



There was one lone man to meet us

"He didn't show any eagerness to, an' he wanted to take the stuff off with him. But the captain wouldn't have that. 'Eat it here an' now,' he says.

"After all, there must be love of life in even Bêche-de-Mer; for he glances all around like a rat that is cornered, and he was edging away, an inch at a time, when old Fritz lost patience and grabbed for him. That settled the question. He turned guilty—for with a leap an' a dodge he got clear away, and legged it. Fritz and Dodd were for going after him, so mad were they, but the captain ordered them to stop.

"'We can get him when we want,' he says; which was right enough, there being no place for him to run to; 'and besides, he's scared,' says the captain. 'Mebbe he'll drown himself, an' save us some trouble.'

"From this I could see that the old man realized our true situation. He had always been determined when wrought up, an' he proved not to have lost any of his character. He sets the case before us.

"'This man seems to be dangerous,' he says. 'We've lost one member of this crew, and . . .'

"'Also them lost when we sent the boats after him, captain, an' in the wreck afterward. He's to blame for the whole parcel of luck we're in,' interrupted old Fritz. 'Beggin' your pardon, sir, but he has the evil eye, he has. An' this bêche-de-mer ain't the stuff he's lived on all these months, either; it ain't supportin'.'

"The captain looked as if he had been suddenly struck with a very bad thought.

"'That may be,' he said, 'and then, again, it may not be so. I've seen circumstantial evidence as bad and bowled over. But this is the point of the matter: He seems to be dangerous. Now who accuses him, an' of what is he charged?'

"The men muttered among themselves. They knew the only thing that could be charged was murder, an' they didn't dare. I was about to make some sort of reply to him, when Mary's voice startles me.

"'I accuse him.'

"'You! And of what? . . . What charge do you prefer?'

"'If we . . . if we are to live here, we must depend on each other, and a woman ought to be able to trust every one. I want a night's peace . . . and . . . and I have been afraid of him so long. He watches me. . . .'

"Suddenly her voice got high and it ended in a quavering shriek, when she begins to sob. I tried to comfort her, forgetting the rest of them, and she made a surprise for the old man by putting her head down on my shoulder . . . an' all that. . . . Well, he asks me, quick and sharp—

"'Mr. Johannesen, do you verily believe that a man's oath can be respected here, like in a 'Frisco court?'

"'Mine can, sir,' I said, somewhat indignant, for I thought he referred to we two, an' I didn't relish it.

"'Well,' he went on, as if making a decision, 'you will defend this wretch before my court. I appoint you counsel for the defence. Mr. Wirt, you must be prosecutor. The men will form a jury. We can't give him a full one, but we must do the best we can. Fritz and Dodd, I deputize you to arrest him.'

"I never knew a judge that impressed me half so much as did the captain when they had brought him in. He came, limp-looking, an' it made the cold shivers go over me to hear the captain say:

"'You are going to be tried for your life; you can sit down there!'

"For a minute the only thing to be heard was that greedy sea hissing over the ledges, and yeh might have thought we were all dead men.

"'The rest of you stand forward in a row,' said the captain. 'Hold up your right hands, while I give yeh the oath.' We did it, and we repeated his oath after him, swearin' to be fair and just and to act in all conscience, so help us God! 'I am willing that anybody else act as the judge in this case,' says the captain, finally; but we agreed that it came in his line of duty, and so there the matter rested.

"The captain then asked Bêche-de-Mer whether or not he was guilty of plotting against our lives, and as to what he had to say; but he didn't say anything; he just sat in one of his fishy stares, an' we couldn't rouse him from it. Wirt then presented the charges. He put the things Mary had said in the first rank, and tried to show that when people got in our situation, if one couldn't be trusted he had better be rated as an enemy. Larzen's death and the strange actions of the man about the camp he took up, and then the peculiar influence he had had on the men, some of which was foolish, he ad-

mitted, but it affected our state of life and must be considered.'

"When it rested with me to defeat all this, I knew that I could only help the fellow by ridiculing Wirt's argument, and their evidence, for which I felt no keen effort. Mary's plea was the strongest count, so I left that till the last. I tried to show that most of this stuff was based on sailor's superstitions, an' that no one could prove that Larzen had died from what he had eaten, and that no one could say that this man had changed the stock of food that night. But when I came to make an argument against what Mary had said, I felt it was no use. And then it was that he gave me a look—ugh! He knew that I wasn't makin' a stiff fight for him. I felt that anything I might say was wasted on the jury it was presented to, though I also believed that none of them felt anxious to kill a man, even such a man.

"Mary was white to the lips, and they were all dead serious. It was a gray day, an' the sea rolled in moaning and hungry-like, an' we on the reef felt just as if we'd been clinging to the last ledge of the world, it was so lonely and dismal, enough to make any one think twice 'fore deciding to kill anything. Yet, it all seemed a big farce—for if we acquitted him, there was no living in peace, an' we could only punish him *one* way, to be safe.

"Finally the arguments were finished. The captain told the jury that they must come to a decision to the best of their belief. He said they should go off and think it over, an' he concluded by telling them what a serious business it was. They went down to the reef's end, while the four of us left sat with Bêche-de-Mer. He hadn't said a word, an' he just stared out over that waste of water, as he had watched, God knows how long, before we came. To think of those long days, an' that sea coming in with the same hiss, an' the same dripping over the coral ledges. . . . It was a death watch we kept, an' we waited silent.

"Then we heard a hail from the men, and saw them returning. Old Fritz led; he seemed a good bit scared, and white, and trembly.

"'Well?' asked the captain.

"'He's got to . . . to go, sir,' said the sailor.

"The captain turned to Bêche-de-Mer.

"'Have you anything to say before . . .'

"Then, to every one's surprise, he stepped up from his place, and begins to talk; in fair English, too, though he felt for a word now and then. We sat there astounded, and I don't believe a man of us could have said a word or moved a hand, no matter what had happened. It was just like yeh had caught a big eel, an' sudden he spoke to yeh.

"'I guess you can do what you please with me,' he says, 'but I have something to say. There's no right in this . . . and you're never going to get away from the reef—nobody ever does. When I was wrecked here, we found the bones of three men—we? . . . Yes, we! There were six of us, and we tried living on bêche-de-mer, just as you have, but we found that we couldn't last on it . . . and no ships came . . . and we just had to live somehow. Finally we drew lots, and the five men left began to think that they might last that way. At length, there was only two of us—I lost in the draw, but the other man was weaker, and I had to live. Then there was a long wait. . . . When you came I didn't care much, I was so weak: but you came, and . . . and then, I felt that I had to live again. That's all I have to say about it. But you can't live on bêche-de-mer, and . . . you will have to live . . . somehow.'

"Meantime, we had shuddered to listen to him. He was worse than anything we had believed—and at that, everything we had suspected, he admitted. He had determined to live, even though it meant we must die, one by one, to save him.

"Then the captain called on him to stand up, an' we all stood up, solemn an' white, while the captain spoke.

"'You've had a trial,' he says, 'and you have confessed. It is the sentence of this court that you must die!'

"He ordered Fritz and Dodd to take the prisoner away, an' to stand guard over him. They went off to some distance, while the captain paces up an' down, an' the rest of us uttering never a word. It all seemed so ridiculous that yeh wanted to laugh, an' then yeh couldn't laugh for bein' so trembly, an' for seeing the captain's face, which was like death itself. Sudden he stopped his walk.

"'Now, there is one thing more to be settled,' says the captain, 'and we'll draw lots.'

"'For what?' asked Wirt, who was shaky.

"'To see who must act as executioner.'

"I wake up nights, sometimes, cold an' shivery, dreaming of that lot-drawing. We could see Dodd and old Fritz and . . . and *him*, off at the spit end: and slowly we drew the little bits of wood the captain had cut and marked. It seemed to me that I could see nothing else but that and Mary's white face, staring at me, an' hear nothing but the long solemn wash of that sea, hissing and dripping, and . . . and then I heard the captain's voice, hard over it all, saying:

"'Mr. Johannesen, you're the only one to carry out the court's sentence!'

"Then Mary gave a cry and fell back; the whole place began to swim before me, and I knew that something ought to be done before she came round to herself again . . . so I turned and went out toward the three figures, away off at the end of the reef. It seemed a long way to go. . . ."

Johannesen paused, and I thought he might mean this for the end of his story. A man does not care to detail everything. But I could not help springing up, exclaiming:

"Then you . . . you did see a ghost—down there on Shakespeare Street?"

He shook his head.

"Wish I had," he said. "No—I sent Dodd and old Fritz back to the party. Then we had a few words, yeh know. 'You made a fine fight to save me, didn't yeh?' says Bêche-de-Mer, and he laughed. Think of a man like that laughing. Such a thin, crawly laugh it was, and it 'most unnerved me. 'And you're killin' me acause of that woman,' he says, an' the look in his eyes was poison; 'I'll remember it,' he says; and then he stared out to sea again, as if he didn't care.

"Sudden—I see him pointing one of his long skinny fingers out there . . . and, thinks I, he's gone off his head, when I heard a hail. And the captain comes running, waving to me. It was a stay of sentence, yeh see, for away off on the sea's edge showed a scrap of sail. . . ."

The beads of sweat had come out on Johannesen's face. All this time he had been striding up and down the room, but now, as if he grew weak and nerveless, he reached for a chair and fairly dropped into it.

"That saved him . . . 'cause I had got my orders . . . but the sail saved him. We waited, and waited . . . and waited; it grew bigger and bigger; finally, they caught our signal.

"She was a small vessel, one of the bêche-de-mer fleet, I think, an' so he had a right to go aboard. Her boats took us off. But his stay wasn't for long. The men got wagging their tongues among the ship's crew—yeh can trust sailors to tell their yarns . . . and when, strange-like, within the hour, dirty weather showed, why there was plain mutiny. They were for tossing him over the side. The captain of the craft was no determined fellow; he listened to them, and he weakened. They put back. They dropped a boat-load of supplies, and on that reef they marooned him. He stood out near the spit end and watched us as we drew away. The men said that was where he belonged—down with his kind—the bêche-de-mer. . ."

Johannesen stopped again, and then feverishly took up the story anew. He pointed his finger at me and said in a tone of accusation.

"Somebody took him off. That's no ghost we saw, but Bêche-de-Mer himself. It's the second time I've sighted him. One night in 'Frisco, when *she* was with me still, I saw him—but he didn't see me. And I recalled what he had said, an' how he had said it. 'You're doin' this acause of that woman . . . I'll remember it!'

"We left 'Frisco that night, Mary and me—then . . . but that was a long time back, an' she's safe away from him where there's no call to worry, thank God!"

Johannesen seemed to have grown much older within the hour. He started whenever there sounded a noise, and his hand trembled close to the gun. I tried to laugh away his fear, and told him that this was no lawless reef, but a great city with a police department. He shook his head and would take no comfort.

"Wirt died sudden in a bigger city than this—New York—killed one night on the docks; old Fritz was throttled in a sailor's boarding-house in New Orleans; they said Dodd was drunk when he fell off the quay at Liverpool, but why should he have marks on him? No! . . ." he said in a dry tone, wetting his lips, "That was *him* . . . down on Shakespeare Street . . . that was Bêche-de-Mer. . ."

The last I heard from Johannesen was the sound of his door-bar when I departed, and, "You keep them notes safe," he called.

No—that was not the *last*. I learned other things in a different way. He was found dead two mornings later. There had been a struggle, and a sailor's knife was beside him. The search took in all the water-front, and I recall that one captain said, when the curious blade was shown to him . . . "South Seas—a bêche-de-mer knife"; which may lend some weight to Johannesen's story.

"You're killin' me acause of that woman"

Points on Local Transportation

By Theodore P. Shonts

THE first thought that occurs to me upon the subject of local transportation is that the real purpose of the railroad is to serve local interests. If these are not adequately served, even the expenditure of vast sums of money in the construction of splendidly built roadways with first-class equipment may not in the end be successful.

I have such a case in mind where a property in the best possible condition, so far as roadways, bridges, and general working equipment are concerned, did not have a station on the road which a wagon could approach without being mired in the mud to the hubs. With such a property as this all the money that can be spared should be devoted to improving the condition of the local stations upon the road. Such improvements not only satisfy local interests, but also serve the interests of the properties for the purposes of which the greater transportation facilities were constructed.

It is the province of the railroad to co-operate with all in improving local transportation, so as to enable the farmer to market his products every day in the year. This assists in regulating prices at terminals, at the same time obviating a scarcity of cars under certain local conditions.

My policy would be to get into as close touch as possible with each community by letting the people know that, while we appreciate the duty of providing rapid transportation for through traffic, the proper function of every railroad is to develop the territory through which it passes. The road which depends upon through business to the neglect of its local business not only loses the advantage of a profitable opportunity for development, but is building up antagonistic sentiment in its own territory. Industries should be built up on local rails.

If every railroad would make it its particular task to cater to the wants of its own people, by developing and assisting traffic on its own lines, rather than to attempt to get through traffic from some other man, it would be better for all concerned. Let everybody attend to the business immediately in hand, and the rest will take care of itself. No thought is closer to me than that we should make it our duty to do to the best of our ability the daily task that is thrown upon us. In that way we become presently qualified for bigger and better undertakings. This is true of railroad enterprise. The foundation of success lies in taking care of local business, which is with us three hundred and sixty-five days in the year.

A scene from the second act. The characters in the foreground, from left to right, are: Paul (William Roselle), Felicitas (Flora Parker), Herman Scholz (Sam Bernard), Murietta (Kitty Gordon), and Count Hochstetter (Harry Corson Clarke)

Murietta (Kitty Gordon) and Herman Scholz (Sam Bernard)

Kitty Gordon in the role of the prima donna Murietta

"THE GIRL AND THE WIZARD"

A NEW musical comedy by J. Hartley Manners, with lyrics by Robert B. Smith and Edward Madden, and music by Julian Edwards, is on view at the Casino Theatre, New York. Sam Bernard plays the principal part, that of a Tyrolese lapidary, one Herman Scholz, who is supposed to possess the powers of a magician.

Scholz decides to take a partner into his business, but determines that only an unmarried man is suitable for the position. His nephew Paul would be eligible, but it develops that he is engaged to Felicitas, the daughter of a count. Paul enlists in the army, and during his absence Count Hochstetter endeavors to persuade his daughter to transfer her affections to Scholz, Paul's wealthy uncle. The lapidary believes that the girl truly loves him, and a marriage is averted only by the return of Paul, who has meanwhile gained fame and riches through the invention of a new type of gun.

In addition to Sam Bernard, the cast includes Kitty Gordon as Murietta, Flora Parker as Felicitas, Harriet Standon as Frantzi, Harry Corson Clarke as Count Hochstetter, and William Roselle as Paul.

A scene from the first act, with Murietta (Kitty Gordon) and Herman Scholz (Sam Bernard) in the foreground

THE PLAY AND THE PLAYERS

SCENES FROM THE NEW MUSICAL COMEDY, "THE GIRL AND THE WIZARD," NOW BEING PERFORMED AT THE CASINO THEATRE, NEW YORK

Drawn by Angus MacDonall

GOOD LUCK?

The National Beverage

IN spite of the widespread agitation against the evils of intemperance in the use of alcoholic beverages, beer is growing in favor as a beverage for all classes in this country and may now be justly termed the national beverage. There is, indeed, no conflict between the agitation and growth of temperance and the increased consumption of beer, since the element of alcohol in beer is not characteristic, but merely incidental and not of sufficient quantity to warrant the drink being classed as an alcoholic stimulant. It is, in fact, a real beverage, a food beverage, free from the deleterious elements contained in the hot tea and coffee of the American breakfast-table, and containing actual food values that are completely absent from these warm drinks.

The History of Brewing

The history of the manufacture and use of beer, as far as it can be traced, is exceedingly interesting. The modern American brewer prides himself upon the fact that his beer is sold almost in the shadow of the Pyramids; but ere the Pyramids were built, thousands of years, perhaps, before the Christian era, the Egyptians were brewing beer, and had reached a point in the development of brewing that made possible breweries great enough to be celebrated. Also, the Greeks, whose ideas in all things refined and beautiful no later people have ever been able to equal, had their beer and esteemed it. These were modern times compared with Egyptian history; but as beer was mentioned by Greek writers who flourished nearly five hundred years before the Christian era, on Greek testimony alone the art of brewing is entitled to the respect accorded antiquity. Though America, the land of great breweries, was still the mythical region of fabled monsters, the world was getting old when Romans conquered it and took the arts and manners from their captive nations; and it is not to be wondered at that they learned the art of brewing, by that time an ancient art. With them, however, it was the drink, not of the common people, as it has been in all other times and with all other peoples, but was a special luxury indulged in only by the great. Beer was drunk by the high and mighty of the Empire, and the Romans antedated the German students many centuries with stein songs; but the steins of the Romans were golden goblets. And a little later, while they drank and sang in the capitol, Varius, their great general, was making the discovery that their uncivilized foes, the Teutons, were beer-drinkers also. He met defeat at the hands of Arminius, and boldly declared that, in his opinion, the valor displayed by his antagonists was to be ascribed, in some measure at least, to their free use of beer. Here was beer again as the beverage of the common people, and here was an argument in favor of beer-drinking. This was in the Germany of to-day, the home of modern brewing, and in German history from the date when the Teutonic tribes emerged from the darkness of the unknown world to the present brewing and beer-drinking have occupied a prominent position. In the turmoil of mediæval days, when the manners, customs, and industries of every part of Europe changed with every change of rulers, the art of brewing spread with great rapidity. The monks became brewers, and one brewery, founded by them at Dobraw, near Pilsen, Bohemia, in the time of Charles IX., is still in existence, the oldest probably in the world. The first Vienna brewery dates back from 1384. In England beer was introduced by the Romans, and before the close of the fifteenth century the English brewers had become exporters. Beer was the drink of both the nobility and the common people throughout Europe, and in many quaint old documents the importance attached to it is attested by curious provisions. There is an old English deed of record in which two gallons of beer a day for the rest of her life are named as one of the conditions made by the fair lady transferring the property. Two gallons of beer, two loaves of bread, and a penny, daily, constituted the total consideration! Evidently beer was then considered a household necessity. Naturally enough, the English and the Dutch brought the brewing art with them to the United States, where it was destined to reach its greatest development. The pioneers in the business were William Penn and Jacobus, a Dutch brewer, who, in 1644, established a brewery and beer-garden on what is now the corner of Pearl Street and Old Slip in New York City. He was afterward burgomaster, and "dispensed beer and justice with equal gravity and impartiality." William Penn brewed and sold beer in Pennsbury, in the State which he founded, and, Quaker though he was, he did not hesitate to praise his own brewing and to patronize the country dances and fairs at which his beer was sold. Another famous brewer was General Israel Putnam, of whose daring school-book writers have never tired, who, when the war was ended, went back to his tavern-keeping and brewing at Pomfret, Connecticut, not ashamed of his humble calling. As it was in England, so it was in America in Colonial times—beer was the common drink, and it was brewed not only in the public breweries, but in the taverns and farm-houses as well.

Growth of the Brewing Industry in the United States

Try to realize what an annual production of sixty million barrels of beer for the country at large means and it is something like trying to realize what unending time or limitless space is. Figures become vital when you come face to face with the concrete things they represent. When one has had the significance of sixty million barrels a year impressed upon his mind, he realizes the impossibility of making its meaning clear in the limits of a magazine article. Any one of a dozen phases of it would be more than sufficient for the space we have at command. Think for a moment of the meaning of the fact that one of the large shipping breweries now produces more than half as much beer as was produced in the whole country in 1863. Think, too, of the meaning of the increase in consumption from two million barrels in 1863 to sixty million barrels for the fiscal year ending July, 1908. Think of the capital invested, the material used, the people employed, the number of industries stimulated! There may be agitation against beer-drinking and beer-making, but if some honest old temperance apostle should suddenly wipe it all out with the wave of a magic wand, he would find that he had made a fearful hole in the industrial world, and he would be lucky indeed if he had not made his own pocketbook suffer. Perhaps a few figures will help to show how great the hole would be. No government statistics are available later than the census returns of 1900, since which date the industry has made enormous strides; but in 1900 the capital invested in the manufacture of malt liquors amounted to four hundred and fifteen millions. Of that amount fifty-four millions was invested in land, one hundred and nineteen millions in buildings, seventy-six millions in machinery and tools, and one hundred and sixty-six millions in sundries, which included horses, wagons, bottles, casks, etc. The value of the product in that year was something over two hundred millions. Comparative figures show that in the decade from 1890 to 1900 the breweries spent something like one hundred millions for buildings and machinery alone. The census report gives the number of brewery employees as 38,385, and the total of their wages as $25,573,612, but it would be safe to nearly double these figures for the last year. Fuel alone cost the brewers four millions in the year of the report. These dry-as-dust figures serve to show the magnitude of the industry and a basis for discussion. If the magic wand were to destroy it all, they show how great would be the direct loss; and if you will bear them in mind and think for a moment of the channels through which this vast industry is sustained, they will help you understand how widespread would be the disturbance. There is scarcely a line of activity that would not feel the upheaval. Statistics, of course, are not available to show the activity created or stimulated indirectly, but it does not require a very vivid imagination to estimate it. Many brewers do not make their own malt. The supplying of that material alone means the investment of millions of capital and the employment of thousands of people. No brewer can make his own machinery, and along that line more millions of money and thousands of people are interested. The brewers use hundreds of thousands of kegs and millions of bottles which somebody else must produce. They cannot make the material out of which their buildings are erected; they must buy their wagons, their fixtures, and hundreds of other things. And before they can sell their product, except in their home cities, they must transport and distribute it, which in itself necessitates an enormous investment in cars and the employment of still more people. When it has been distributed it must be sold, and here again is employment for tens of thousands of men and an added investment of a huge sum of money, the size of which cannot even be guessed at. Vast as must be the investment along these lines, they are only what might properly be termed the incidental side of the industry. No account as yet has been taken of the material out of which beer is made. Here no guiding statistics are at hand as to the investment or the number of people interested. Except in the hop-growing industry, the statistics of which have been gathered, there could be only a rough guess at the acreage used. But a glance at the consumption of cereals will give an idea of the importance of the industry to the agricultural interests of the country. The production of sixty million barrels of beer a year necessitates an annual consumption of seventy-five million bushels of barley malt, seven hundred and twenty million pounds of rice and corn, and sixty million pounds of hops. At average prices it is estimated that the farm products consumed are worth seventy-five million dollars, not taking into account what is consumed in the stables or including the very great quantities of hay used for packing purposes. How far the consumption of barley and corn may affect the prices of these cereals it is difficult to say, but the hop-growing industry rests almost entirely on the brewing industry, and it is great enough to command attention. In 1900 there were about fifty-six thousand acres devoted to hop-growing, and anybody who knows anything about the growing and gathering of hops will know that fifty-six thousand acres will give employment to a very large number of people, from all of which it will be seen that the farmer gets his share of the indirect benefits of the brewing business.

Beer and National Sobriety

It is universally agreed that the increased popular consumption of beer has been marked by a distinct gain in sobriety on the part of the American people. Fifty years ago we were almost at the head of spirits-drinking peoples; to-day we are about at the foot. No more significant fact could be mentioned in connection with the history of beer. Our greatest men have recognized beer as a most commendable beverage and the worst enemy of intemperance. Thomas Jefferson, who framed the Declaration of Independence, maintained that beer was not only a beneficial drink, but the brewing of it promoted the welfare of the whole country by opening to the farmer a wider market for his grain. And the *Encyclopædia Americana* tells of Madison, the fourth President of the United States: "In 1789 Madison publicly expressed the hope that the industry of brewing would extend its influence into every State of the Union." Alexander Hamilton declared himself in favor of furthering grape culture and the manufacture of malt beverages with the aim of substituting the products of the vineyard and the brewery for ardent spirits. In an address before the Pennsylvania General Assembly in 1713, Governor Gordon deplored the decadence of brewing and recommended that the industry be encouraged. Dr. Benjamin Rush, of the University of Pennsylvania, taught that the true solution of the drink problem lay in encouraging the brewing industry. A Sanitary Commission, appointed by President Lincoln to examine the camps of the Union army, made a report testifying to the healthfulness of malt liquors, and added that in regiments where beer was freely used they found that it possessed hygienic qualities which recommended its use for the prevention of certain diseases. In a recent interview General Frederick D. Grant, then commander of the Department of the East, declared that the health of the army had steadily grown worse since the abolition of the canteen, until it is worse than that of any other army in the world. It is a well-known fact that beer and light wines only were sold at army canteens, and when the Rev. Edmund Banks Smith, chaplain of Governor's Island, addressed the Assembly Excise Board at Albany a little less than a year ago he spoke to the same effect.

An Aid to Temperance

It is sometimes urged by those who are not well posted that beer-drinking leads to whiskey-drinking, notwithstanding the fact that it has been demonstrated over and over again in many lands and under varying conditions that wherever the manufacture and sale of malt and fermented beverages is encouraged the consumption of ardent spirits decreases. The Germans have been a beer-drinking nation for nearly two thousand years, and have not yet taken to whiskey-drinking, and no nation has furnished better soldiers, more daring adventurers, ripe scholars, profounder thinkers, or more skilful artisans. The temperate nations are the nations that drink the mild beverages, the light natural wines and beers. The intemperate nations are the nations that drink the fiery spirituous liquors—whiskey, gin, brandy, vodka, etc. Maine, the prohibition State, suffers from drunkenness, from the effect of poisonous drink highly charged with alcohol, more perhaps than any State in the Union. Maine, the prohibition State, is cursed with a great body of secret drunkards, because temperate, open drinking of mild beverages is prevented by law and whiskey-drinking is made compulsive and encouraged. Prohibition must have that effect everywhere. Prohibition means well, but it drives out by law the bulky, light, harmless drinks of temperate people—wines and beers. It compels men who will drink to take the whiskies and gin, the concentrated poisonous stimulants easily hidden and of which a small amount produces drunkenness. It has been repeatedly demonstrated that when one form of stimulant is denied the people they will invariably obtain another and almost invariably a stronger, more secret, and more injurious substitute. The fundamental error of the prohibitionists is in their classification of all stimulants upon the same level, and so long as they maintain this attitude a solution of the drink problem will never be found. In Maine, per capita, there is ten times more drunkenness than there is in France. In Maine prohibition rules, and the law says that no man shall buy anything to drink. In France there exists temperance and no prohibition. The French government, in public placards and by education at government expense, denounces the use of highly alcoholic drinks. And it encourages and even subsidizes the production and the sale of light natural wines. If to-morrow you should establish prohibition in France, if you forbade the public selling of light, harmless stimulants that the people have always taken, and always will take, you would drive out the use of the light wines that produce a temperate race and you would compel the use of whiskies, gin, and other poisons that produce drunkenness. So it is in Germany, where all the people, from time immemorial, have been temperate drinkers of light, wholesome beers with a very small percentage of alcohol. There is infinitely less drunkenness in Germany, where prohibition is never heard of, than in Maine or in Kansas, our two most distinguished prohibition States. There is infinitely less drunkenness, less crime, and disorder due to drink in Germany, France, or Italy, where the people are temperate and where everybody drinks the real temperate drinks, than in any one of our Southern States recently devoted to prohibition. Prohibition in Germany would mean driving out harmless beers which do not lead to intoxication. But prohibition would not stop men from drinking. It would compel them to give up beer, which cannot well be hidden, and replace it with "schnapps," the German substitute for our health-destroying and mind-destroying whiskey. Law-makers in the United States and public opinion in the United States should condemn the use of the strong, poisonous, highly alcoholic drinks, penalizing with high license or otherwise the use of such drinks. And public opinion, common-sense, and the law should not only permit but encourage the sale in decent resorts, under decent conditions, of the natural light wines and beers that mean real temperance.

Purity and Healthfulness of Beer

In these days, when we hear so much of impure and adulterated foods and drinks, and the national government has found it necessary to establish a Pure Food Commission in order to safeguard the lives and health of the people, and most of the States have appointed similar commissions, it is a relief to know that one commodity which is almost universally used is generally conceded to be pure. Almost every other beverage, whether alcoholic or non-alcoholic, can be and frequently is tampered with by unscrupulous retailers, but the very nature of beer makes it impossible for it to be "doctored" after it leaves the brewery. Cleanliness is the first requisite of purity, and nobody who has visited a big brewery, who has seen the washing of the barley, the cleansing of

(Continued on page 30.)

Finance

THE PRINCE AND THE PAUPER

By Franklin Escher

"THE steel business is either a pauper or a prince." That is what Andrew Carnegie said a few years ago, and it is just as true now as when he said it. In steel, evidently, there is no middle course—the change comes with lightning rapidity. Only as far back as February the steel industry was plunged in the depths of depression. To-day the United States Steel Corporation is operating practically at capacity and turning out more steel than it ever turned out in its history.

Wall Street is proverbially short-memoried and the terms "unprecedented" and "unparalleled" are overmuch used in the financial jargon. But with regard to the past six months' improvement in steel conditions, exaggeration is hardly possible. The steel industry has had its vicissitudes—sharp changes from depression to prosperity. But never anything like what has happened this year. That is unprecedented and unparalleled—this time without the quotation marks.

To get the situation in right perspective it is necessary to go back to last February when the big company finally abandoned its price-maintenance policy, declared an "open" market, and announced its intention of going out for whatever business there was. For six weeks or two months there wasn't much. Frightened by the wholesale slashing of prices and unable to gauge where it would end, buyers at first held off entirely, awaiting developments. But soon came the inevitable conviction that prices were comparatively, actually, and intrinsically low, and that unless general business depression closed in again, contracts for steel could not but turn out profitably. With the broadening and deepening of that conviction came the turn in the tide. Consumers of steel began to make inquiries about contracts for deliveries far ahead. They were met with the statement that the prevailing prices were for spot delivery only, and that no long-time contracts would be made at the low figures. That was what started the buying. Immediately prices began to rise and that accelerated the buying still further. In an incredibly short time conditions underwent a radical change and steel consumers began to find that they were dealing with a prince instead of a pauper.

The history of the steel business since then is one unbroken record of progress. Midsummer came, but instead of the usual slackening down and banking of fires, new furnaces, one after the other, were blown in, production being continuously increased. Each month the estimate of the percentage at which the big company was operating was raised a little. Gradually it crept up to ninety-six. That is the estimate at present. It means that practically every mill in the United States Steel Corporation is manufacturing all the steel it can.

In the steel business September was a month of superlatives; all records went by the board. Gradually but surely the rising tide crept above the notches set in the big boom of 1906–1907. By the end of the month they had all been covered—records for ore production, pig-iron production, and all. A year's business at September's rate would mean an out-turn of finished steel two million tons greater than the out-turn of any previous year in the history of the United States Steel Corporation.

These are the facts of the case, nor is it necessary to go very far afield for the reason. For two years consumption of steel has been far below normal. Until up to within a few months ago the railroads confined their purchases to what they absolutely had to have. Take, for instance, the buying of rails. In the three years preceding 1907, rails ordered averaged 3,661,000 tons per annum. In 1908 total output of rails was 1,921,000, and this year, in spite of recent big orders, output can hardly exceed 2,500,000 tons. That means that last year there was a deficiency from the three-year average of 1,740,000 tons, and that this year's output will run at least 1,160,000 tons below.

In rails alone, then, there is a deficiency of very nearly 3,000,000 tons which has accumulated during the past two years, and most of which will have to be made good within a comparatively short time. But this condition has by no means been confined to rails. It has been going on in other lines to just as marked a degree, with the result that there is a perfectly enormous amount of work to be caught up with. With current requirements great as they are it can easily be seen to what a pitch of activity the existence of such conditions is apt to force the steel-manufacturing industry. The capacity of all the mills of the country for producing rails is not over 5,000,000 tons. An average production in 1910 coupled with the making good of the deficiency for 1908 and 1909 would call for an output of over 6,500,000 tons of rails.

The steel-makers believe that this business is going to materialize. They say so openly, and they are backing up what they say by going ahead rapidly with important extension plans. This week there was published a long list of the leading concerns of Pittsburg which were greatly enlarging plants. Concerns manufacturing every type of steel product were represented on the list. The Republic Iron and Steel Company, the Sharon Steel Hoop Company, and the Standard Steel Car Company are among the companies greatly extending their capacity. They see an immense volume of profitable business ahead of them for 1910, and are getting ready to take care of it.

Considerations such as these suggest the inadvisability of offhand criticism and condemnation of the great rise which has taken place in the steel shares. That the advance in steel common since February is one of the most notable stock movements in the history of the Exchange is quite true, and that the rise has not been unaccompanied by manipulative tactics is plain to every one who has closely observed its progress. But the proposition that all or most of the rise has been due to "pool operations" is something quite different. Sneering allusions to "churning up activity," "washing operations," and "flagrant manipulation" no doubt impress the hearer with the keen, you-can't-fool-me perception of the oracles who utter them, but are hardly indicative of any great knowledge of the condition of the steel business, which, after all, is the subject at issue.

Of the great advances made on the Exchange by prominent stocks in recent years, and afterward proved legitimate, practically every one will be found to have been due to one or more of three causes—improvement in trade conditions bringing about prospects for earnings which would warrant higher dividends; the becoming productive of hitherto unproductive property owned; a contest for control of the company. Numerous instances of each might be cited. It is interesting to apply the test to the rise which has taken place in steel.

Taking the first—has anything happened in the steel business to warrant the expectation of earnings which mean a higher dividend? Decidedly yes. As has been noted, the recovery in the steel industry has been little less than phenomenal. Only eight months ago the trade was in a condition of utter demoralization, the trust and the independents underbidding each other, prices for what little steel was being sold quoted at the lowest in years, nobody making any money. Within that short space of time so great has been the change in the situation that the steel mills are filled up with orders, consumers are importuning the manufacturers for prompt deliveries and paying big premiums to get them, while prices of the finished product have been bounding upward all along the line. That is what has happened in the steel industry to warrant the expectation of earnings justifying higher dividends.

What is the United States Steel Company earning now? That is a question which will be officially answered on the 26th when the meeting to act upon the dividend will be held. In the mean time Wall Street is busily figuring out its estimates of what net earnings for the third quarter will be, estimates, by the way, based upon reliable data, and which in the past have come singularly near being correct. Wall Street has fixed upon $38,000,000 as the net for the quarter just ended, which would compare with $29,300,000 actually earned during the quarter ended June 30th. For the year's fourth quarter conservative estimates run between $41,000,000 and $43,000,000.

Comparison of these figures shows that they run well below the amounts earned in the corresponding quarters of 1907, but those earnings were the result of a much smaller tonnage sold at a much higher price. Chairman Gary has just come out again with a plea for the maintenance of a stable level of steel prices, but from the way in which prices are surging up at present, it seems as though further material advances were inevitable. And in the mean time by the acquisition of the Tennessee Coal and Iron Company and the completion of the great plant at Gary, the company's productive capacity has been largely increased. Every indication now is for an output of steel in 1910 very greatly in excess of the output for any previous year. With prices continuing to rise as they are rising now, it is plain enough what is bound to be shown in the way of earnings.

Especially so in view of the fact that the two years of depression were utilized to bring the company's plants to a far higher state of efficiency than they had before the panic. More steel can be turned out now than then, and not only that, but it can be turned out cheaper. A ton of rails sold at $28 in 1909 means a bigger net profit to the company than a ton of rails sold at $28 meant in 1906. But particularly is this true in the case of the smaller irons into the manufacture of which the company was just beginning to enter largely when the panic came. Very great improvements in manufacturing methods have been made since then, and steel men are confidently looking forward to very large revenues from this source. The acquisition of several important plants and the building of several others will have an important bearing on the reduction of operating charges, as will the very great sums of money which have been poured back into the property out of earnings.

Turning to the other question as to whether any great amount of the company's unproductive property has suddenly become productive, it can be said that belated appreciation of the value of the company's ore lands has played an important part in bringing about the rise in the stock. Then, too, there is the putting into operation of the Gary plant in which millions upon millions have been unproductively tied up for years. About the fact that the Gary plant was bound soon to become a factor of enormous potency in the company's earning power there was no secret whatever, but in this case, as in so many others, it has needed the actual beginning of operations to awaken the investor to a full realization of what has been going on. "The Gary plant has been building right along," scoff the opponents of the advance, "the value of the ore lands has been known for years. Is it likely that the 'investor' has just suddenly come to realize how valuable the stock is?" Not only likely, but actually so. It has been the case with half a dozen important stocks which might be mentioned, and it has been the case here. While the steel business was in last spring's state of depression and the big company was operating at less than forty-five per cent., there was nothing very taking in the argument about increased capacity to result from the blowing in of new furnaces at Gary. With consumers clamoring for finished material and paying premiums to get it, the enormous capacity of the Gary plant and the 500,000-ton capacity of the Tennessee Coal and Iron Company look very different.

These are the considerations responsible for the present price of United States steel stock. Investors' buying was by no means the only thing which lifted its price, but it was the solid belief of the general investing public in "steel" which made it possible for "steel" to rise as it did. Security prices notoriously discount the future and every indication now is that 1910 will be the greatest steel year the country has ever seen. United States Steel common is in a position to get the benefit. It is only lately that the great investing public has come to realize it.

Atchison's dividend increase to six per cent. turned out to have been pretty well discounted, but in the long run is bound to help the investment market materially. The road is one of several the restoration of whose dividends is the logical outcome of the business they are doing. The Street is looking for the others to follow Atchison's lead. Possible dividends are always a strong uplifting influence—especially where underlying conditions indicate that they are probable.

Oklahoma's innovation in the way of having the banks all contribute to a deposit guarantee fund received a severe jolt recently, when the Columbia Bank and Trust Company of Oklahoma City failed for more than the whole guarantee fund amounted to. When the deposit guarantee scheme was allowed to become a law, bankers figured that it would quiet the popular demand for postal savings-banks—and so, for a while, it did. But, as was inevitable, the first real bank failure under the new law has "shown it up," and depositors in the banks which have to make good the deficiency of the bank that failed are now more insistent than ever in their demand for savings-banks under government supervision.

The problem is different here in the East from what it is out in the newer parts of the country where there are no savings-banks such as we have them. In a city like New York there is no trouble about the safe depositing of money, in however small amount. But out in the less-developed sections of the country the question as to how savings shall safely be banked is a good deal more serious. One thing is certain—the solution is *not* in the putting of a premium on reckless banking by the adoption of any such guarantee scheme as was adopted by the Oklahoma legislators. The recent bank failure has put a keen weapon into the hands of the friends of the postal savings-bank idea.

Chesapeake and Ohio's reported acquisition of the Chicago, Cincinnati, and Louisville which gives it the coveted entrance to Chicago, seems to bear out the idea expressed several times in these paragraphs that Chesapeake is not to be sold by the Hawley interests, but is to be kept and made the backbone of a new system.

Just why the favorites among the "deal" rumors flying so thick and fast should be those involving the formation of new transcontinental lines is hard to see, excepting, perhaps, that "transcontinental" is a sort of catchword suggesting vast amounts of profitable traffic. As a matter of fact the transcontinental traffic idea has been very much overdone—there is a good deal less freight hauled all the way from ocean to ocean than many people think. California pears are no doubt hauled all the way from San Francisco to Baltimore, and terrapin and canvas-backs are probably hauled all the way back, but this merchandise is not what fills the cars going or coming. This is a pretty big country and there is lots of room in it for the long haul without its being from ocean to ocean.

With regard to the influence of the higher level of money rates on the stock-market, there is this important point to bear in mind—time money has been accessible for months past in great quantities and at low rates, so that nobody who figured he might need money this fall has had any trouble in securing all he wanted. The very strong interests responsible for the present market knew very well that they would need money this fall to carry on their campaign, and there is every probability that they provided themselves with what they needed—long ago. Some continued scattering selling may be expected from speculative holders of stocks, less provident, but of the great mass of speculatively held securities, serious liquidation on account of the firmer money-market will hardly take place. Current quotations for money have nothing to do with what is actually being paid for the capital with which the bulk of stocks are being carried.

The Ubiquitous Alloy

In the metal-working trades things are seldom what they seem to be. Most people want things as cheaply as possible, and manufactured goods cannot be sold for less than the cost of the mere metal. Many articles are not, strictly speaking, the things they are taken for, and are all the more desirable because they are not.

"Block-tin" goods, for instance, are steel goods, coated. Vessels made of tin would melt on the fire or fall to pieces immediately that they were used. Steel must be used, and "block" only means that an extra-thick coating of tin has been given.

"Brass" stair-carpets are not brass, but are rods of iron cased with very thin tubes of brass. Much "copper" work is not copper at all, but coated iron. The part pure metals play in manufacture is nothing by comparison with the alloys in their many hundreds of combinations.

Pure iron, for example, is only a laboratory preparation. Cast iron, the most generally useful variety, contains about five per cent. of impurities, and the curious thing is that it owes its special value to the presence of these. Pure iron can be shaved with a pocket-knife; impure iron can be made almost as hard as steel.

Steel is a true alloy, containing several foreign elements. Here, too, as in iron, the special values of the different steels depend on the nature and proportion of these elements. Steel may be had as soft as the softest irons.

The wear and tear of coinage is delayed by the admixture of baser metals with the precious ones. In their pure state gold and silver would be too soft to stand the usage for which coins are intended. Manufacturers of brass and gun metal are able to effect very surprising results in alloys. They will produce bright and useful substances with the most unpromising materials gathered from the old-metal merchants.

Alloys, therefore, are of infinitely more value than pure metals are. This has been known ever since the prehistoric days when men cast their celts or chisels in mixtures of copper and tin, the tin being the hardening element. By varying the proportions of these two, widely differing materials may be produced—materials that, on the one hand, will fracture with a blow, or, on the other, will stand any amount of hammering.

Distorting the Earth's Shape

During the last congress of the International Geodetic Association at the Institution of Civil Engineers in London the celebrated investigator of earth tides, Professor Hecker, read a most interesting paper on that subject. He declared that his was no new theory, but that he was the first scientist to perform any practical experiments in support of it.

It was at Potsdam in an underground room about eighty-two feet below the surface that Professor Hecker's experiments were made to determine the varying effect of the sun and moon on the earth. His apparatus consisted of an extremely delicate horizontal pendulum which could record even so minute a variation as that of one-hundred-thousandth part of a second.

By this means it was demonstrated that the earth was affected by the sun and moon twice in each twenty-four hours and that the force exerted by the moon was twice as powerful as that of the sun. Apparently not merely the outer crust, but the whole mass of the earth, is affected, and the sphere is really deformed at these times. Professor Hecker believes that the earth is a rigid body throughout, and that the theory of a viscous stratum lying between the crust and a solid central core is erroneous. By further experiments he hopes eventually to determine the exact composition of our earth.

The British Standard Screw

The British War Office is said to have overcome most, if not all, of the difficulties in the way of constructing an accurate standard screw, for use in the more delicate branches of engineering.

The standard screw, shown at Bushy House, London, is made of compressed steel, and is about six feet long. It is attached to a lathe twenty feet long, and since it works so accurately as to correct an error of only one ten-thousandth of an inch, it has to be protected from changes of temperature by being housed in a special building, kept at a constant temperature of sixty degrees. Special precautions are taken to prevent vibration. For scientific purposes a screw must be so accurately cut that it will move forward to its nut exactly the same distance for each rotation about its axis.

Special or Private Car

By Alonzo C. Mather

With the rapid and wonderful improvement in the construction and operation of our railroads, the straightening of curves at enormous expense to save even the shortest haul, the lowering of grades to make easy the handling of heavy capacity cars in trains of great length, it is but natural that a vast amount of time, money, and thought should be expended on the construction of special cars best suited for the kind of freight to be shipped in them, so now there is little chance for improvement. Refrigerator cars for the economical transportation of all kinds of animal products; ventilating and refrigerating cars for the handling of all kinds of fruit which ripen while in transit; heater cars for winter transportation of vegetables; enamelled-lined tank cars for milk, wines, mineral waters; automobile cars; steel tank cars for oil; horse and stock cars for the humane transportation of live-stock, equipped with easy springs and feeding and watering facilities so cattle can ride in comfort and eat while under way, have now reached such a state of perfection that a dead, maimed, or crippled animal at the unloading chutes of our great stock-yards is rarely if ever seen, when in old times the platforms in the early morning were strewn with them; in fact, cars for most everything which ingenuity can devise, until now there is approximately a hundred million dollars or more invested in special equipment built mostly with private means, and greatly to the advantage of the railroad, as they have no care and responsibility for their maintenance, and only pay for them when used, and they are shifted from one road to another as occasion requires.

And were it not for these special cars the expense and loss in transit of products now transported in them would amount to enormous sums each year, our city markets would be deprived of much they now enjoy, and the railroads would lose at least twenty-five per cent. of their business on products which are now transported which otherwise could not be. ***

THE BEST ALL-ROUND FAMILY LINIMENT is "BROWN'S HOUSEHOLD PANACEA." 25 cents a bottle. ***

Use BROWN'S Camphorated, Saponaceous DENTIFRICE for the teeth. Delicious. 25 cents per Jar. ***

ADVERTISEMENTS.

MAY BE COFFEE

That Causes all the Trouble.

When the house is afire, it's like a body when disease begins to show—it's no time to talk, but time to act. Delay is dangerous. Remove the cause of the trouble at once.

"For a number of years," says a Kansas lady, "I felt sure that coffee was hurting me, and yet I was so fond of it I could not give it up. I paltered with my appetite, and of course yielded to the temptation to drink more. At last I got so bad that I made up my mind I must either quit the use of coffee or die.

"Everything I ate distressed me, and I suffered severely almost all the time with palpitation of the heart. I frequently woke up in the night with the feeling that I was almost gone—my heart seemed so smothered and weak in its action that I feared it would stop beating. My breath grew short, and the least exertion set me to panting. I slept but little, and suffered from rheumatism.

"Two years ago I stopped using the coffee and began to use Postum, and from the very first I began to improve. It worked a miracle! Now I can eat anything and digest it without trouble. I sleep like a baby, and my heart beats full, strong, and easily. My breathing has become steady and normal, and my rheumatism has left me. I feel like another person, and it is all due to quitting coffee and using Postum, for I haven't used any medicine, and none would have done any good as long as I kept drugging with coffee." "There's a Reason." Read the little book, "The Road to Wellville," in pkgs.

Ever read the above letter? A new one appears from time to time. They are genuine, true, and full of human interest.

XMAS GOLD POST CARDS FREE! Send us 5c, stamps, for postage and we will send you Ten Nice Sample Post Cards, and our Big Surprise Offer. Beautiful colors, pretty designs. Big offer. POST CARD HOUSE, 1651 BROADWAY, SPRINGFIELD, MASS.

'Ware the imitator!

The Success of

MAKAROFF RUSSIAN CIGARETS

has brought out a host of imitations. If you ever tried one of them you probably haven't much use for a Russian cigaret. A lot of people have asked for Makaroffs and gotten something else—not always the dealer's fault, because we haven't been able to supply everybody until now. Now there's no excuse for the dealer. He has them or can get them instanter from his local jobber.

SAY "MAKAROFF" TO YOUR DEALER TODAY

and treat yourself to a clean, pure smoke of real tobacco and nothing else.

Plain, cork-tip or mouthpiece. Fifteen Cents and a Quarter.

Makaroff - Boston

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Must have the Best Milk, which is

BORDEN'S EAGLE BRAND Condensed Milk

It is Superior to Fresh Cow's Milk and solves the Infant Feeding Problem.

It perfectly Protects Our Babies from the Danger of Impure Milk.

Sterile and Safe.

BORDEN'S CONDENSED MILK CO.

Est. 1857 "Leaders of Quality" New York

If you have never before tried

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Best Natural Laxative Water

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CONSTIPATION

Try it *now*

Ask your physician

PARIS GARTERS NO METAL CAN TOUCH YOU

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They fit so well you forget They're there

Be sure you get this box

Tailored to fit the leg

25 and 50¢

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Key West, Fla.
Battle House, Mobile, Ala.
Galveston, Tex.
Hotel Grunewald, New Orleans, La.
Fort Morgan, Ala.

Port Arthur, Tex.
Havana, Cuba
Tampa, Fla.
New Willard Hotel, Washington, D. C
Auditorium Annex, Chicago
Benton Harbor, Mich.
Cleveland, Ohio
Pabst Brewery, Milwaukee, Wis.
Holland, Mich.
Grand Haven, Mich.
Manitowoc, Wis.
Buffalo, N. Y.

San Diego, Cal.
Catalina Island, Cal.
Los Angeles, Cal.
Hotel Green, Pasadena, Cal.
Hotel Potter, San Barbara, Cal.
San Francisco, Cal.
Monterey, Cal.
Fort Bragg, Cal.
Eureka, Cal.
Capital Hotel, Sacramento, Cal.
San Luis Obispo, Cal.
Salem, Ore.

Marshfield, Ore. (Coos Bldg.)
Astoria, Ore.
Rosenburg, Ore.
Westport, Ore
Eugene, Ore.
Portland, Ore.
Aberdeen, Wash.
Tacoma Hotel, Tacoma, Wash.
Kalama, Wash.
Seattle, Wash.
Perry Hotel, Seattle, Wash.
Port Townsend, Wash.

Olympia, Wash.
Everett, Wash.
Bellingham, Wash.
Friday Harbor, Wash.
Vancouver, B. C.
Hotel Dunsmuir, Vancouver, B. C.
Victoria, B. C.
Juneau, Alaska
Katella, Alaska
Cordova, Alaska
Ketchikan, Alaska

Washington Was Buried in a Blizzard on March 4, 1909

Trains lost in the snow; United States mails stalled; not a wheel was turning; not A WIRE OF ANY KIND WAS WORKING. The only news sent from Washington on March 4, telling of Taft's inauguration, was transmitted by the UNITED WIRELESS!

All Other Telegraph Service Was Out of Business

Messages accepted for any point in the United States where any public telegraph service of any company is doing business.

No Extra Charge for United Wireless Land Messages

For further particulars and proof of the superiority of the United System and service, address

THE UNITED WIRELESS TELEGRAPH CO.

42 Broadway, New York City

(Continued from page 27.)

the air, the filtering of the beer, and the sterilizing of the bottles and barrels can doubt that the product is clean—and malt and hops are surely healthful. A report has just been made public by a special government commission in England in which a good word is uttered for the nutritive value of beer. The general idea that beer is primarily an alcoholic drink is opposed in this report, which holds that when well and properly made it is a beverage containing a very small amount of alcohol and a relatively large amount of nutritive material. Says *The Hospital* (London, May 1) in an editorial about the report:

"It is time that the erroneous view that beer has no nutritive value in itself and merely consists of a beverage upon which a certain portion of the community intoxicates itself should be exposed and discredited. The results of our Commission show that beer is par excellence the nutritive alcoholic beverage. All beverages because they contain alcohol should not be regarded in the same light. The spirit-nipper is committing quite a different act from the beer-drinker; in fact, beer is much farther removed, from the point of view of its alcohol content, from some wines and all spirits than it is from ginger-beer. When a man drinks good beer he drinks and eats at the same time, just as when he eats a bowl of soup. The term 'eat' and 'drink' are curiously but inconsistently used as connoting the difference between what is merely quenching our thirst and what is actually consuming nourishment. Our Commission points out a man might more properly be said to eat beer than to eat certain kinds of soup, or, indeed, watermelon. Their report will enable members of the medical profession and the public to understand clearly what constitutes good beer and where and how they may obtain it. Beer-drinkers, the numbers of whom we hope will increase considerably as the result of the researches of our Commissioners, are now in a position to protect themselves from bad beers, and we hold the view that it would be infinitely better for the well-being of the people of these islands as a whole if they were to select beer as their habitual drink rather than wines or spirits. Climatic conditions have a good deal to do with the dietetic value of substances used for allaying thirst. Our Commissioners properly drive home that when a man drinks beer or stout habitually he is not only drinking, but eating, a fact which has not been sufficiently recognized in recent years. These beverages contain all the elements of a typical diet, with the exception of fat, and in a proportion approximately physiological. Our Commissioners remind us that if the worth of a food is measured by its calorimetric value, the fact is that a glass of good ale is approximately as nourishing as a glass of milk, and that a quart of good beer is nearly equivalent to a quarter of a pound of beef. Another point in favor of beer and stout as beverages is that the likelihood of their containing pathogenic organisms is too extremely remote. This gives them, like tea and coffee, a great advantage over milk, for they are all prepared under conditions which render pollution by infective bacteria extremely improbable."

The good people who condemn beer-drinking have had much to say about its alcoholic principle, most of them never dreaming that in the making of bread practically the same percentage of alcohol is produced as in the brewing of beer. The difference is that in beer the small amount is retained, whereas in bread it evaporates in the baking. They forget that alcohol is like a great many other things in that the quantity taken determines whether the effect is beneficial or injurious. Strychnine in quantity, for instance, is one of the deadliest of poisons, but in small doses is one of the best of tonics. The dear old lady who abhors alcohol but loves her cup of tea sips it in blissful unconsciousness that its active principle, caffeine, is a poison as sure as is the alcohol she would not touch in any form. Beer contains about three and one-half per cent. of alcohol. It has been demonstrated that when not over an ounce and a half of alcohol, greatly diluted, is taken in twenty-four hours it has a distinct food value. With these statistics, remembering that in beer the proportion of alcohol to water is about one to thirty, you can figure out for yourself whether alcohol in this instance is beneficial or injurious. In spite of the adverse opinions put forth by a few not posted on the subject, the per capita consumption of beer increased from 16.6 gallons in 1905 to 21 gallons for the fiscal year just ended. Here, evidently, suspicion and distrust were badly worsted in the conflict with sound reason and appetite. What does this thirty per cent. increase in consumption mean? That the old beer-drinkers are drinking more heavily? Oh, no; neither appetite nor purchasing power changes that rapidly. It means simply that nearly one-third more people are drinking beer to-day than were drinking beer three or four years ago. To the zealous prohibitionist that will appear an awful statement, but if he is a philosopher he will understand that there is more than the enterprise of the brewers behind the increase—that there must be some merit in the beverage itself to account for it. If there was not, no amount of push on the part of the brewers could bring about so great a change in so short a time. ***

Club Cocktails
A Bottled Delight
The difference between CLUB COCKTAILS and the guess-work kind, is just the difference between a real drink and an imitation. Get CLUB COCKTAILS from your dealer.
Martini (gin base) Manhattan (whiskey base) are always popular.
G. F. HEUBLEIN & BRO.
Hartford New York London

Unusual Business Openings

In Missouri, Arkansas, Louisiana, and Texas, along the lines of the Cotton Belt Route, there are extraordinary openings for almost every line of business. There is absolute need for some industries on account of the rapid development of the country.

The unlimited supply of timber makes the establishment of box and crate factories, furniture, sash, blind, handle, hoop, and stave factories, etc., especially inviting.

along the

Cotton Belt

Canning factories and ice plants are also greatly needed to take care of the big crops of fruits and vegetables. There is practically no business or industry for which there is not an unusual opportunity in Cotton Belt territory.

The Agricultural and Industrial Department of the Cotton Belt will give you detailed and accurate information about these openings on request. If you are interested in any certain business, let us know and we will make a special effort to advise you along that particular line.

Write to-day to
GUY L. STEWART
Agri. & Ind. Agent
1730 Pierce Bldg.,
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COTTON BELT ROUTE

ABBOTT'S BITTERS

Makes the best cocktail. Aids digestion. A pleasing aromatic for all wine, spirit and soda beverages. A delightful tonic and invigorator. At wine merchants and druggists.
Important to see that it is Abbott's.

The North Western Line

CHICAGO PASSENGER TERMINAL

Chicago & North Western Railway
Chicago, St. Paul, Minneapolis & Omaha Railway

Pierre, Rapid City & North Western Railway
Wyoming & North Western Railway

THE PORTAL OF THE WEST

The New Passenger Terminal of the Chicago & North Western Railway at Chicago is to be one of the finest monuments ever erected to the commercial life and spirit of the West.

Hundreds of trains arriving at and departing from this terminal every day will connect Chicago with thousands of Western cities, towns, and villages.

More than $20,000,000 is being expended to provide a railway entrance to the city, through which passenger traffic to and from the territory that has made Chicago powerful and rich is to move in ceaseless activity.

Work upon the new station is proceeding with all the rapidity that skill and liberal expenditure can command.

The new station will have a capacity for handling a quarter of a million patrons daily.

It is confidently asserted that its provisions for doing this expeditiously and with the greatest comfort will excel anything ever known to the travelling public.

THE NORTH WESTERN LINE

The Best of Everything

W. B. KNISKERN
Passenger Traffic Manager, N. & N. W. Railway
CHICAGO, Ill.

GreatSouthernLumberCo.

Manufacturers of

Long Leaf Yellow Pine

CAPACITY OF MILLS, 900,000 FT. PER DAY

"Largest Saw Mill Plant in the World," at Bogalusa, La.

Car Roofing, Siding, Sills, Lining
Trestle Timbers, and Railroad Ties

SPECIAL FACILITIES FOR PROMPT SHIPMENTS

GENERAL SALES OFFICE

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FROGS	SWITCH STANDS	BANNER STANDS
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JENNE TRACK JACKS	ROLLER RAIL BENDERS	

The Object of The New York Electrical Show

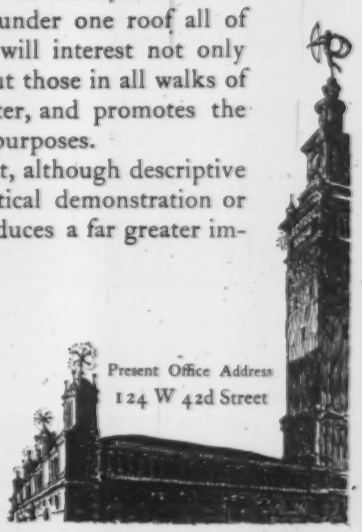
THE NEW YORK ELECTRICAL SHOW creates a general public interest in electrical applications and familiarizes laymen with the use of devices that otherwise would probably not be brought to their attention. It exploits the latest application of electric motor drive for every conceivable process and gives practical working demonstrations of all the latest electrical and allied appliances.

In the vicinity of New York there are many hundreds of manufacturers who are alert to discover new methods for increasing production. Merchants are looking for novel methods of illumination and electric light advertising; owners of hotels, apartments and private houses are always interested in appliances that will add to cleanliness and comfort.

THE ELECTRICAL SHOW, fostered by the lighting interests of the Greater City and its environs, is held for the purpose of bringing together under one roof all of the apparatus and appliances that will interest not only the class of people enumerated, but those in all walks of life. It is educational in character, and promotes the increased use of electricity for all purposes.

It must be acknowledged that, although descriptive material is of great value, a practical demonstration or working exhibit of machinery produces a far greater impression on the general public.

THE THIRD ANNUAL
NEW YORK
ELECTRICAL SHOW
will be held at
Madison Square Garden
October 11 to 21
1909



There's Money to be Made

Give the men who built the Rock Island-Frisco Lines, Mr. Investor, credit for having built with a view to the future.

Give the present management credit for extending the lines according to traffic needs, both now and of the future.

Come with us on an inspection trip

In Texas and The Southwest

We will show you what looked good to us. It may be of interest to you!

Rock Island-Frisco Lines penetrate every nook and corner of the Great Southwest where there is prospect of building up local enterprises and of populating the territory. Every train carries in new "developers."

The management has the needs of that community so closely at heart that it maintains a corps of industrial investigators, in order to keep fully advised as to the exact local conditions. We offer you this information absolutely without cost, because it's to our mutual advantage to do so. We want to get you interested in the new country

Along the Rock Island-Frisco Lines

Low-rate excursions first and third Tuesdays every month to all points Southwest. Watch for them.

Send name and address for an illustrated book on the Southwestern state in which you are most interested.

JOHN SEBASTIAN, Passenger Traffic Manager
Rock Island-Frisco Lines
and Chicago and Eastern Illinois R. R.
1942 La Salle Station, Chicago
or 1942 Frisco Bldg., St. Louis

CELEBRITIES AT HOME

(Continued from page 12.)

attractive form. Yet this is not fair to the idea nor to the man. He expressed it more accurately and justly in a recent public address when he said:

"Millions of people have passed through the Hoboken tunnels. A letter of complaint has become almost a curiosity—letters of commendation are frequent.

"We believe in 'the public-be-*pleased*' policy as opposed to 'the public-be-damned' policy; we believe that that railroad is best which serves the public *best;* that decent treatment of the public evokes decent treatment from the public; that recognition by the corporation of the just rights of the people results in recognition by the people of the just rights of the corporation. A square deal for the people and a square deal for the corporation. The latter is as essential as the former and they are not incompatible.

"We believe that we have already demonstrated it. Our ambition is to continue to demonstrate it."

On a breezy hillside commanding exquisite vistas of the Hudson River at Irvington, Mr. McAdoo, a few years ago, found an old house and four acres of ground beside the Alexander Hamilton estate. Not many years ago it was a remote country seat; to-day it is a residence rather far up-town within easy distance of the skyscraper district by motor-car and Subway. The old house Mr. McAdoo transformed into a fine big dwelling of the Colonial type, upon the ground floor of which a troop of cavalry could move with ease. Broad lawns with groups of locusts and other ancient trees, interspersed with beds of blossoms and containing a garden of old-fashioned flowers, give the place that air of spaciousness one associates with Southern homes. Here the tunnel pioneer lives with his wife and children. He is president of the Southern Society, vice-president of the Automobile Club of America, a member of the Metropolitan, the Strollers, and the Ardsley and St. Andrews golf clubs; but the clubs see little of him. When he is not at work he is at home. By way of exercise he rides a horse or plays a little golf, but his chief recreation is found in running an automobile. Every evening he climbs into the driver's seat at the Seventy-second Street Subway station and darts northward as fast as the law permits. Every policeman along the road knows him and greets him with a smile, and he knows every one of them, and has a smile and a cheerful hail as he runs past. Nothing in the world, he says, will brush away all business and professional cares so quickly and effectively as a dash in a motor-car. No matter how hot or cold or rainy the weather may be, he sits in the open car and bowls along. In vacation-time he goes to Europe and amuses himself by sending his car along the excellent roads at a brisk pace, and finding his own way from point to point among people whose language he can hardly understand. If it were not difficult it would not be entertaining to this pathfinder.

But it is the man at work rather than the man at play who will be best remembered, the man whose insight and persistence established upon a basis of failure a new and wonderful system of traffic, the man who wins and keeps success by giving good service and courtesy to the public—McAdoo the man of the future working for us to-day.

LOCATING THE POLE

(Continued from page 16.)

ice and open water and possibly over land. Twenty miles uncertainty on any one sight may be considered as a reasonable allowance under these circumstances.

If, however, a series of observations were taken, and both explorers speak of a "round of observations," the errors both of the sextant and of refraction, should largely neutralize each other in pairs of sights taken on opposite sides of the horizon—that is, one hundred and eighty degrees, or twelve hours, apart. Thus if a meridian altitude taken when the sun was on the meridian of Washington gave a latitude ten miles too far south, one taken twelve hours later, when the sun was on the meridian of Singapore, should, if the conditions remained similar, give a latitude ten miles too far south on the opposite side of the pole, and the mean should be near the truth. Several such sets of observations should give a fairly correct result.

So far we have considered observations of the sun only, but if it was found possible to get sights on one or more stars, the results should be far more accurate. Not only is the number of observations much increased, but if Polaris or other closely circumpolar stars were used, the greater altitude avoids much of the difficulty due to refraction.

It seems unlikely that this was possible, however, as the sun did not set during the time either explorer was at the pole, and it requires a clear day and a sextant in excellent condition to get a sight even of Venus in daylight; and Venus is many times brighter than any of the stars available near the pole.

The procedure on reaching a point supposed to be at the pole would be to set up the artificial horizon, and take all possible pains to see that it and the sextant were both in the best possible condition and adjustment. Then take as large a number of sights as possible, getting them as far as possible at equal intervals around the horizon. The chronometer shows with sufficient accuracy on what meridian the sun is at each sight. Each is therefore worked as a meridian altitude, and the resulting latitude plotted on the proper meridian. The result may be shown by a sketch. In Fig. I., P is the pole, the circle A B C D is the parallel of eighty-nine north, A and B, C and D, E and F, pairs of meridians opposite each other, and suppose the observer to be really at the pole. Assume that errors of instrument, refraction, etc., make each sight give a latitude ten miles too far south. Then it will be seen that while a b c d e and f, the lines of position resulting from the sights on the corresponding meridians, are each ten miles from being correct, the means of the opposite pairs each pass through the pole, and give the best fix possible under the circumstances.

In Fig. 2 suppose the observer is not at the pole, but at some other point p. Each separate sight as before gives a wrong result, but the means of opposite pairs pass through the true position, and though all are latitude sights, the point p is determined in both latitude and longitude. The accuracy of the determination can be judged by the number of observations, and by the amount by which different ones vary from the mean result—that is, by the dispersion.

Comfort In Railroad Travel

If there is any one thing desirable in a passenger-car above all others, it is a heating system designed to give just exactly the heat required irrespective of the outside temperature. The new Thermo-Jet System is such a one, and railroad officials advise that the service given by this equipment has amply demonstrated that most accurate results are obtained. The system, which is a form of heating by direct steam, provides for an absolute regulation of the temperature of the radiating pipes, both above and below 212 degrees. In very cold weather the valves can be opened wide, admitting steam up to twenty-five pounds pressure, and as soon as the car is warm the pressure can be reduced again, giving a most positive regulation of the car temperature. It has been determined that for about nine-tenths of the ordinary heating season, as experienced in this climate, a temperature of the radiating pipes 110 degrees above the normal temperature of the car is ample, and the ability to effect this regulation means an economy in steam and coal consumption.

The perfected Pintsch lamps with large inverted mantles, and the Axle Dyfiamo Elertric Lighting System, are most efficient illuminating methods, and when used in connection with modern heating apparatus make a railroad coach as comfortable as a city dwelling.

Let's Eat Weeds

In view of the present prices of food products and the outlook for the future, it may be some comfort to the American citizen to know that several of the most common weeds are good for table use.

Wild chicory is bitterly hated by the farmer, but it will make a delightful salad, tender and wholesome. The virtues of the dandelion in this respect are now well known. Wild mustard, or charlock, another bane of the farmer, gives a delicious flavor to soup, as will polk-weed, which in France is cultivated as a vegetable, taking the place of bay leaves, sage, thyme, and the like. Dock-weeds are astonishingly hard to discourage, so in Europe they use both the broad-leafed and curly-leafed varieties as table vegetables. Nettles are much used in Scotland, Poland, and Germany, as greens, when young and tender. Purslain is boiled with other vegetables to give the dish a piquant flavor. Sorrel is looked upon as a great pest by most farmers, but choice leaves picked from sorrel "weeds" make a splendid salad for a game dinner. Most people think milkweed poisonous, but it is, in fact, a medicinal vegetable with a flavor all its own. The young leaves seem a cross between spinach and asparagus, and in a salad are delicious.

PINTSCH LIGHT

The Inverted Mantle lamp for Pintsch Gas is now in service on over 5000 cars. The merits that are interesting railroad managements include:

- Unexcelled brilliancy of 99.5 candle power per lamp.
- Demonstrated cost approximately one cent per hour.
- Flat flame lamp equipment available for alteration at minimum cost, resulting in threefold greater illumination and increased tank capacity.
- Pintsch System has been applied to over 165,000 cars throughout the world.

ELECTRIC LIGHT

Safety Axle-Driven Dynamo Equipment—now operating successfully on leading railroads—has demonstrated its reliability.

- A product of sixteen years' experience.
- High grade of materials and workmanship.
- Generator of simple, strong and durable construction and of most practical design.
- Regulator giving effective control and economy in the use of current.

Equipments either sold or operated under contract.

STEAM HEAT

Car Heating Specialists. Direct Steam and Hot Water Systems designed to give positive regulation of temperature and economy in steam. The Thermo Jet System is automatic and operates with or without pressure as desired. Steam-tight couplers, traps, end train pipe valves and other appliances.

THE SAFETY CAR HEATING AND LIGHTING COMPANY

2 Rector St., New York

CHICAGO BOSTON ATLANTA MONTREAL PHILADELPHIA ST. LOUIS BERKELEY, CAL.

The Perils of the Postman

THERE are parts of the world where the task of the letter-carrier is actually attended with serious danger, and where he not infrequently loses his life in the line of duty.

In Switzerland there exist several post-offices at a height of seven thousand or more feet. There is a letter-box on the very summit of the Languard, from which four collections are made daily. This box is nearly ten thousand feet above the sea-level. Here, some few years ago, three letter-carriers were crushed to death by an avalanche. In a neighboring canton, in the summer of 1903, a postman fell into a crevasse while crossing a glacier, his two full bags on his back. All efforts to recover either the body or the mails were of no avail. But, a few years thereafter, the glacier gave up its prey many miles lower down the valley, and the long-lost letters were delivered to as many of the addresses as could be traced.

Another danger to which the Swiss letter-carrier is exposed is attack by the huge, fierce eagles that soar hungrily above the least-frequented passes. Usually the men are able to beat off their feathered assailants, but not always.

In India the letter-carrier has his troubles in the form of snakes. In one year alone, it is estimated, no fewer than one hundred and thirty-five carriers met their death through being bitten by poisonous snakes. A trifle of twenty-seven or so were killed and eaten by tigers and other wild beasts.

The camel postman of the Sahara hinterland is another who needs lots of nerve, inasmuch as the wild tribesmen of the desert regard him as their natural prey; so that it may be said that he never knows, when he sets out in the morning, whether he will reach his destination at night. But he pursues the even tenor of his way, regarding an ambush by spearmen as a part of the ordinary routine incident to his job.

Mail deliveries in thinly settled regions of the East are in some cases as primitive as possible. In Japan the rural post-runner still swings his baskets across his shoulders precisely as his ancestors did long ago. In Formosa, also, the mails are carried to this day by a man on foot, who jogs along with a paper lantern and an umbrella.

In Siberia, except along the lines of railway, reliance is had on post-sledges; and there are places where more than two deliveries a year would be exceptional.

In China, in the interior, except in a few districts, there is no regular letter delivery, and consequently no postman. But many of the mandarins and taotais maintain unofficial services of their own, keeping their runners up to the mark by the simple expedient of occasionally beheading a laggard or two.

Coyotes Beware!

THE State of Colorado is endeavoring to protect its deer, not by passing more stringent game laws, but by waging a merciless campaign against the coyotes and wolves which annually destroy many times as much game as does the army of sportsmen and pot-hunters who flood that locality during the open season. All the game wardens have been instructed by the State Game Commissioner to scatter poison broadcast throughout their districts, in the hope to exterminate as many of the beasts as possible. The old system of the strychnine carcass is the method to be used in destroying the animals.

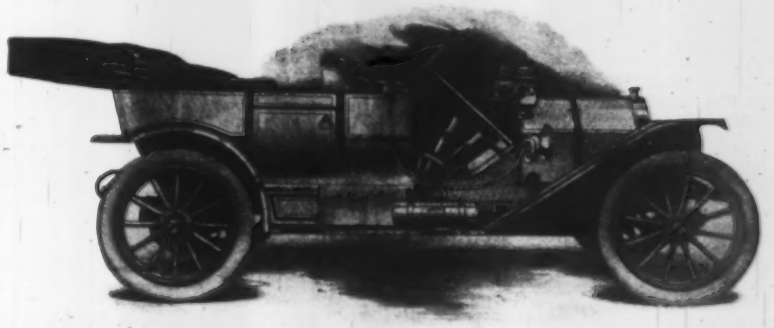
During the summer and winter the depredations of the wolves are most severe, and the herds of deer are constantly harried. The young fawns are pulled down in the late summer, and when the winter sets in, with deep snow covering the ground, the deer are helpless before the wolves.

Before the West had many settlers and before the rise of the towns the coyote was an infrequent visitor in the mountainous district. This was true because game was more easily caught on the plains, and men had not yet gone into the mountains and furnished the coyote with a good living upon the refuse that was thrown away each day. The coyote, therefore, has flourished under the advance of civilization, and it is time that his numbers were depleted.

Night

Low swings the cradle of a new-born moon,
The pipes o' Pan are hushed—the thrush at rest.
The lanterns of the hills are lit and soon
Across the breathless lake the migrant loon
Will lift his laughter to the ashen West.
The weary embers of the day are drawn:—
Falls night, the eternal curtain of the dawn.

GARDNER W. WOOD.



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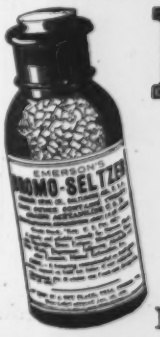

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